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USSR Report

ENERGY

No. 29

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ELECTRIC POWER

COMPREHENSIVE NATIONAL ENERGY DEVELOPMENT POLICY NEEDED

Moscow IZVESTIYA in Russian 1 Jun 80 p 3

[Article by Academician M. Styrikovich: "The Main Link"]

[Text] Over the past several years, very great changes have taken place in energetics, forcing us to take a new approach to some theses which had long seemed indisputable. First, there was the sharp increase in the price of oil on the world market and the development of nuclear energy as a proven and reliable method of producing a significant share of all electric energy.

In working with the basic portion of the schedule for consumption of electric energy, i.e., with full projected load within the course of the entire technically possible allotment of calendar time, nuclear power stations produce electric energy at a cost considerably lower than any other electric power stations. There might possibly be an exception here for the ordinary electric power stations of central Siberia and of northern Kazakhstan, which are fueled by extremely inexpensive coal from the nearby Ekibastuz and Kansk-Achinsk basins.

From this it follows that we need a sharp change in our attitude toward oil. Previously, oil was regarded almost universally as the most inexpensive fuel, with the products of its refining widely utilized by any consumer, including large basic electric power stations. Now, and even more so in the long run, oil has to be subjected to extensive processing, mainly into fuel for motor transport, aviation and other powered vehicles. It is also being utilized as a chemical raw material. Expenditure of petroleum products as boiler and furnace fuel must be reduced to the minimum as quickly as possible.

Unfortunately, a great number of the powerful power units of electric power stations have steam generators designed solely for the use of mazut and natural gas; rebuilding such power stations and converting them to coal is a difficult and expensive measure which also involves removing these power units from operation for long periods. Therefore, the most basic method for excluding mazut for use at electric power stations within the next few years is to convert them to natural gas. Although the

USSR has more natural gas reserves than any other country, most of those reserves are concentrated in the northern part of Tyumenskaya Oblast, making it expensive to transport this gas 2,000-4,000 km to its main consumers. Construction of new gas pipelines also requires great capital investment. That is why natural gas will not, in the near future, completely replace liquid boiler-furnace fuel used by steady customers.

Under these conditions, there is considerable scope for economical use of electric energy, particularly by those consumers whose sole alternative is either fuel gas or, more likely, liquid fuel.

The question of the optimal share of electrified transport needs to be raised anew. Under current world prices for diesel fuel and gasoline, the economy of electrification increases sharply both for railroads (at the moment, railroads in the USSR have been electrified only 30 percent of their total distance, with almost 50 percent of all freight being hauled by diesel locomotives) as well as for intra-city transport (on which about 60 percent of the passengers are carried by bus and only 40 percent by streetcars, trolleybuses and subway). Undoubtedly, it would be economical also to shift over as quickly as possible to use of electric drives for the compressors of the new gas trunklines (at least in those areas with developed electric power systems).

The question should be raised anew of the optimal introduction of electric cars in industry and, particularly, in intra-city transport. With batteries which we already have on hand, the transfer of a certain portion, albeit a small part, of intra-city traffic to electric cars is fully feasible economically.

It must be expected, however, that with future development and assimilation of new and improved batteries it might be expedient to shift over a considerable part of our trucks and taxis to electric running; the same is true of intra-city and suburban buses.

We must carefully study the comparative economy of all high-temperature processes based on the use of liquid fuel and fuel gas, particularly on the use of coke, in ferrous and nonferrous metallurgy, in metal processing, in various branches of chemical production, etc. We must compare them with the use of electric heating, the use of plasma guns and other processes based on the use of electric energy.

Finally, particularly as applied to middle and low-temperature heat supply, we must again review all possibilities for replacing liquid fuel and fuel gas by transferring some consumers to heat provided by nuclear heat and power plants and boilers. Dispersed consumers could be shifted to electric energy supplemented by heat accumulators, permitting them to orient themselves to "declining" electric energy.

Some low-temperature heat users might find it more effective to use so-called "heat pumps." These devices are used in electric energy not through its direct conversion into heat but for the purpose of "pumping" the heat of the surrounding atmosphere into the area which is being heated or cooled. These devices are particularly effective where the source of heat is not too cold, as for example, in winter, when the heat is derived from the water of rivers, lakes or the sea.

As is evident from what we have said above, we must review once again a tremendous circle of questions encompassing all branches of the national economy, questions connected in one manner or another with problems of electrification.

Naturally, for all of these studies requiring detailed knowledge of various production processes, we must attract the specialized institutes embracing all the basic branches of the national economy. However, this research must not just consider the economy to be derived by just certain branches but should encompass the entire range of expenditures to be borne directly or indirectly by our nation in producing the needed electric energy together with consideration of a schedule for its consumption.

Such complex research requires creation of a sufficiently large center for predicting the development of electrification. The most suitable base for such a center is the Energetics Institute imeni G. M. Krzhizhanovskiy, which is within the system of the USSR Ministry of Power and Electrification and which is under the scientific and methodological direction of the USSR Academy of Sciences. Within this center must be concentrated a number of sections of institutes of the Ministry of Power and other governmental departments, including academic institutes involved in the tasks of the center.

Creation of such a center would facilitate the most rapid development of an optimal strategy for electrification and, accordingly, in prospect, a colossal economic effect.

Certainly such a review would abundantly demonstrate the advisability of orienting ourselves toward rapidly increasing the share of electric energy in the energy balance of the USSR, basically through increased production of electric power at nuclear power stations.

Meanwhile, the present situation regarding the supplying of electric power to the national economy cannot be considered satisfactory. In connection with the insufficiency of capacity during "peak" work load hours, instances of limitation of power to consumers or of their being cut off entirely are not infrequent. Such a situation leads to great losses. What is more important, however, is the fact that, because there is an insufficient supply of fuel to electric power stations, the unified electric power system which encompasses all of the European part of the USSR, the Urals and the Transcaucasus, i.e., the overwhelming majority of consumers, operates at reduced power a large part of the time. This method of reducing the supply of electric power to our customers leads to tremendous losses, inasmuch as the decrease in power causes a lowering of the revolutions of a majority of electric motors and, accordingly, a decrease in the productivity of the equipment.

Particularly material is the fact that such a limitation on consumption and the associated loss of labor productivity falls mainly upon the shoulders of industrial branches which are equipped with small motors--motors which do not have the capacity, as a rule, for maintaining the r.p.m. of their working parts when there is a drop in network power.

In a number of instances, for example where there is only one kilowatt of power per worker, the loss of "pure production" (mainly from the wage fund) leads to losses of 1-2 or more rubles per unsupplied kilowatt hour, a kilowatt hour which it cost our national economy 2-3 kopecks to produce. To this should be added a largely immeasurable loss in the quality of production, something which happens to a majority of our customers due to the instability of power frequencies.

A selective lowering of supply--especially to those enterprises where the greatest part of "pure production" consists of the cost of the electric power itself--to maintain the normal power frequency throughout the entire system would result in considerably less loss for the entire national economy.

Undoubtedly, however, the selection of any method whatsoever for limiting the consumption of electric energy will produce greater losses than the full cost of its production on the scale required, including also the necessary capital investment in the extraction and transport of fuel.

It seems that it would be more expedient to cut back somewhat on capital investment in the construction of new enterprises which would be consumers of electric energy and to direct the funds thus freed into expansion of the power base. This question is worthy of the serious attention of Gosplan USSR.

Naturally, this situation does not in any measure remove the issue of the conservation in every conceivable way of electric energy in all those cases where measures aimed at lowering its distribution will not result in the lowering of labor productivity.

It should be noted that, in addition to lower power frequencies which are one and the same throughout the entire unified electric power system, cases of lowered (as against the nominal) voltage have been observed. This has an effect, first, on the effectiveness of illumination, inasmuch as the light output of incandescent lamps decreases sharply with even a slight drop in voltage. In addition, where there is a drop in voltage there are increased losses in power nets, a lowering of the productivity of several power-consuming units, and disruption of the normal technological process for several consumers.

Unfortunately, the scientific research organizations of the Ministry of Power and Gosplan USSR have yet to sufficiently study the losses caused various consumers where there is a deviation from the nominal of the electric energy being supplied them.

It is exceptionally important that we immediately launch a detailed study of this problem. This would permit us to select economically based methods for limiting consumption where necessary, and to develop measures for conserving electric energy as well as rates for increasing its production to meet the needs of our national economy in full.

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ELECTRIC POWER

PLANNING AND ECONOMIC STIMULATION IMPROVEMENTS IN ELECTRICAL ENGINEERING INDUSTRY

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA in Russian No 5, 1980 pp 61-73

[Interview with the Director of Plant Sibelektrotyazhmash Al'bert Kuz'mich Vandyshev by Ye. Lysaya]

[Text] An economic experiment has been going on for a number of years in the electrical engineering industry to improve planning and the economic stimulation of scientific and technical progress. Its results were considered during the preparation of the decree of the CC CPSU and the USSR Council of Ministers "Improving Planning and Strengthening the Influence of the Economic Mechanism for Increasing Production Effectiveness and Work Quality." The experiment has been a success at Plant Sibelektrotyazhmash [Siberian Heavy Electrical Machinery Plant]. The plant director A. K. Vandyshev, at the request of the editorial board, shares his observations and conclusions on the work of stimulating technical progress under these new conditions.

[Question] Al'bert Kuz'mich, as far as we know new equipment has always made up a relatively large share of the total volume of plant production. What has changed in the production of new products in recent years and how apparent have these changes been?

[Answer] Yes, our plant as well as Plant Elektrosila, Uralelektrotyazhmash [Ural Heavy Electrical Machinery Plant], and many other industrial enterprises are constantly working on the development of new electrical machinery--a major facet of production. A significant part of these machines are in accordance with the so-called "imennik"--the inscribed list approved by Gosplan USSR--because they have been connected with the commissioning of hydroelectric power stations, TETs, GRES, and other large-scale national economic projects.

Our main gain is that, thanks to the new conditions for stimulating scientific and technical progress, we have gained confidence in the work on new equipment. Now it is possible for us to devote greater attention to improving the technical characteristics of the manufactured products and their production economic indicators instead of thinking only about "volume," "realization."

It is a known fact that a unified fund for the development of new equipment has been set up in Minelektrotekhprom/Ministry of the Electrical Engineering Industry/. It is made up of deductions from the projected profits of associations, enterprises, and organizations. In addition, it also includes a part of the additional profit(the surcharge on the wholesale price) realized from the production of new highly-effective articles bearing the emblem of quality. This centralized fund finances scientific research and experimental design operations, the technological preparation of new articles, and the manufacture of their test models.

There is an enormous advantage in having a stable system for controlling developments. We know for certain that the necessary resources will be provided and we can boldly plan work on new production.

The principle feature of the new conditions for stimulating technical progress is that the final result--the economic impact and production quality--is the evaluation criterion. The interests of the manufacturer and the consumer are brought together on this basis. The effectiveness of the customer's new product in comparison with what was manufactured earlier is taken into consideration during the emblem of quality certification process.

Realization and profit plans are being set for us without considering the bonus mark-ups, and their fulfillment is being estimated by accounting for the wholesale price mark-ups. The profit and supplementary profit obtained in the form of a mark-up to the wholesale price if the article is awarded a higher quality category are the basis of the bonus funds. Thus, a growth in the production of new machines with the emblem of quality is of direct benefit, by increasing our bonus funds.

The 12 July 1979 decree of the CC CPSU and the USSR Council of Ministers increases even more the economic interest of the enterprises in the production of new articles of a higher quality category. It introduces penalties for the manufacture of the second category of quality products and articles not certified within the established time periods: a discount to the wholesale price of 50 percent of the total profit. If this product continues to be turned out after the expiration of the time period for removing it from production, then the discount amounts to the total profit.

It was advantageous before to produce highly profitable though obsolete articles. Now such production leads to a reduction in profit and stimulation funds. I think that this is a weighty argument in favor of new equipment.

During the experiment over the past two five-year plans, we succeeded in almost fully restoring production output and contributing on the order of 170 million rubles to the national economy which amounted to more than 30 percent of the total production of the All-Union Industrial Association Soyuzelektrotyazhmash [All-Union Trust for Heavy Electrical Machinery Plants]. The plant increased production of articles with the emblem of quality from 28 percent in 1970 to 64.2 percent in 1979.

All of our hydraulic generators and turbogenerators have the emblem of quality including the largest 500,000 kilowatt turbogenerator with its progressive water-oil cooling method, and the hydraulic generators for the Toktogul'skaya, Cheboksarskaya, and Nizhnekamskaya GES's and the Inguri GES. It is worth taking special note of the Inguri ones. There are only a few such generators in the world. These are large hydraulic generators for work in mountain rivers, high-speed, with a modern cooling method.

The highest quality category was also awarded to a number of other electrical machines--an induction motor with short-circuited rotor, a single-phase frequency converter, etc.

[Question] What about the remaining 35.8 percent of the products? What are the prospects for their improvement and certification for the emblem of quality?

[Answer] I would not say that the possibilities are great here. Apparently the ones having the most potential are the new series ATD-4 synchronous turbine engine, replacing the ATD-2, and the new frequency converters to whose production we are fully converting in the 11th five-year plan. Their metal content will be decreased respectively by 15 and 20 percent in comparison with those being manufactured at the present time.

We cannot certify consumer goods--household electric stoves and electric heaters--for the emblem of quality because of delays in providing modern materials. Their share of total production--13.8 percent--is a fairly high figure for heavy machine-building plants. However, we cannot count on the emblem of quality because it is awarded only to electric stoves which have stainless steel tubular electric heating elements. The plant is turning out stoves with stamped burners. In the industry at the present time only the Fastovskiy Plant makes such elements and this only satisfies 10 percent of the demands of stove manufacturers. A burner with a tubular element lasts 5,000 hours; a stamped one--2,000 hours. The former is easily cleaned, and does not rust or burn out. Our designers have developed a draft of a new stove with tubular electric heating elements, while satisfying esthetic considerations. However, we cannot start production of it because there are no castings. In the same way we are not being alloted the expensive veneers for the finish of the electric heaters although these articles are in great demand.

The remaining uncertified production is made up of articles which we must transfer to other plants, and single cooperative orders. The machines which we will develop in place of the ones we transfer we will immediately prepare for the hogher quality level. A clear rule was introduced at the plant beginning with the 9th five-year plan: do not produce even one new article unless it has a chance of being certified with the emblem of quality.

/Question/ How are the designers handling such rigid demands? I would like you to tell us how the new conditions for stimulating technical progress have affected the interaction of the project developers and the manufacturers during the creation of new articles. How are these interests being accommodated at the present time?

/Answer/ In the first place it should be noted that the plant and the Siberian Scientific Research Institute of Heavy Electrical Machinery were combined in the 8th five-year plan. This organizational unity has drawn together the aims and interests of the manufacturers and developers. Secondly, with the switchover to the new conditions for stimulating technical progress, we have seen a growth in the knowledge of the designers, and even of the ordinary executives, and in their interest in the entire production cycle of manufacturing new machines, not addressing for the present the final result. I would call this a fundamentally new stage of interaction.

Earlier the designers perceived the author's supervision of the process of developing a new article as a heavy responsibility. Now they are attaching very great importance to this procedure. They are also analyzing the production cost for the manufacture of new machines, and are making suggestions on how to further decrease production costs.

We manufacture almost all articles in accordance with drafts of the plant scientific research institute. Their standard is quite high as evidenced by the fact that most of the articles in the industrial subsector bear the emblem of quality.

All of the assessment criteria for production at a high qualitative and technical level, it seems to me, have still not been completed although the July 1979 decree made important refinements to the earlier operating conditions. Previously the wholesale price mark-up was set only after the article was certified for the emblem of quality. Sometimes we operated for half or even a larger part of the emblem of quality validity period without a mark-up because the registration and certification procedure took up a lot of time. Now the wholesale price mark-up for effectiveness and quality will be granted for a period of up to one year(up to two years for a product of special complexity) just as soon as the article has been presented for certification. If a higher quality category is awarded during this period, the term of the mark-up will be prolonged for up to four years(up to five years for a product of special complexity).

The institute and the plant are creating complex large-capacity electrical machinery with high operating characteristics without resorting to the imitation of foreign models. There is no need to replace such articles more often than every 10-15 years. This has led to tangible losses of economic stimulation funds--the emblem of quality continues to be valid, but the mark-up is not paid.

The active product replacement cycle, which began in 1970, reached its peak in 1974-75. During this period new articles amounted to more than 40 percent of total yearly production volume. Subsequently the replacement process was stabilized at a level of 20-25 percent, basically for hydraulic generators. These are custom design machines which cannot greatly increase replacement volumes and rates. Although the output of products with the emblem of quality continues to grow, the size of the wholesale price mark-up has decreased in recent years. The next replacement stage will be in the 11th five-year plan, when we will replace all of the asynchronous motors, frequency converters, and the 120,000 kilowatt turbogenerators, which amount to 60 percent of our output for this type of equipment.

The peaks and troughs affect the institute most of all because the mark-ups for the output of new higher quality articles is the basic source of economic stimulation for its collective.

/Question/ The decree provides for the preservation of wholesale price mark-ups at specified levels during the repeated certification of articles for the emblem of quality. Does this indeed have a favorable effect on our stimulation funds?

/Answer/ In all likelihood, in the future we will have a more planned system for generating yearly stimulation funds although we will continue to produce high-level articles for a specific period which are either not stimulated or inadequately stimulated.

You know that during a repeated certification the mark-up is preserved at the same size if the technical and economic characteristics of the article are improved. If improvements have not been made, the size of the mark-up and the time period of its validity are cut in half. We are continually working on improving and modernizing the manufactured machinery. However, there may be no need to make radical changes during the 10-15 years before a new series is introduced if the article conforms to world standards. Of course, when the design becomes obsolete and begins to be inferior to foreign models in any way, we remove it from production and substitute another.

The chain of evaluation criteria, in our view, has not yet been completed. It must be hoped that some kind of refinements will be introduced to stimulate the production of technically complex articles.

/Question/ The plant looks to achieve the best final national economic results by speeding up scientific and technical progress. Such a purposeful and, one can say, exacting approach compels us obviously to solve many serious problems in organizing and directing production. What is being done to realize those new principles which were enunciated in the decree of the CC CPSU and USSR Council of Ministers of 12July 1979?

[Answer] To fulfill this decree our industry was obliged to issue a number of directives on switching enterprises over to the new planning and economic stimulation conditions. The determining indicator for the electrical engineering industry will not be pure production, but the commodity production growth rate at comparable prices, including effectiveness and quality coefficients. Thus, this new indicator most directly depends on the output of technically perfect products of the highest quality which possess great national economic effectiveness.

If the standards remain constant, it will be advantageous for the enterprise to concentrate its attention on the output of articles of a high technical and qualitative level. However, I nevertheless fear that there will be attempts in the industry to introduce differences in standards in accordance with the results achieved.

[Question] What has caused such doubts?

[Answer] Do you understand the situation? Business executives are people who take a sober view of things and have a fair amount of scepticism. They prefer to be always prepared for surprises, for unforeseen situations. Many of us have been often convinced that if you commit all of your resources you will be the loser. The practice of planning by what has been achieved has placed the enterprises having the highest results in the most difficult position up to now. Take the history of the recent five-year plans at our plant.

In the 8th five-year plan our plant was combined with Sibelektrotransmash which was 500 meters from us. During this merger we centralized the nonstandard equipment, steam power, insulation-wrapping, tool, and galvanized coatings shops. In the ninth five-year plant the plants are separated and both enterprises have increased gross production because we are now supplying Sibelektrotransmash, on a cooperative basis, with some units and parts, we are supplying steam, and we are performing a number of other services.

In the last five-year plan we sharply increased the output of consumer goods(from 2.3 million rubles to almost 5.9 million), by manufacturing electric heaters. The peak for replacing electrical machinery also fell at the end of that five-year plan. All of this permitted the projected production volume rate of growth of 36.6 percent to actually reach 64.9 percent. We do not now have such great growth possibilities in the 10th five-year plan. They plan for the plant to achieve the very same rate--36.6 percent. The intensity of the planned tasks has reached the work places. We are busy searching for deep reserves. We are introducing personal production plans at each work place. They have used a computer for this because you would have to increase the economic staff of the shops by 40 people to do the manual calculations. They have obtained fine results. Now the plant is the core enterprise in the industry for developing individual production planning know-how at each work place.

At a neighboring plant the machine operators and assemblers still do not have such intensive tasks. After acquiring high skills, some workers leave us for nearby enterprises where the work is a little easier and the pay is no lower.

There were many other cases where enterprises which used their resources intensively turned out to be losers. Economic stimulation funds after 1965 were time and again revised and trimmed. It is very important that the principle of the constancy of standards affirmed in the decree is not violated by the industries and departments.

/Question/ The decree outlines large-scale measures to ensure a balancing of plans and tasks, and to coordinate all types of resources--material, labor, financial. Obviously, an increase in the balancing level will also build confidence in the work on new equipment. The production of new modern articles requires new materials, more precise equipment, and other conditions.

/Answer/ The balancing problems are very important to us. Hydraulic generators, for example, are very high in metallic content. We must obtain much rolled metal from metallurgical combines as well as forgings for them. And what forgings! Some weigh dozens of tons. The rolled metal arrives late. We do not receive our orders for forgings in full and the time periods are not observed. Thus, in 1979 Gossnab provided for the delivery of hydraulic generator shaft forgings from the Novokramatorskiy Machinebuilding Plant. We concluded an agreement and determined the time periods. In February 1979 Gossnab transferred funds for 470 tons of forgings to the Izhorskiy Plant imeni A. A. Zhdanov which quite naturally postponed delivery to a later date. This redistribution of funds within the current year led to a disruption in the manufacture of forgings and to a revision of the planned tasks for hydraulic generator production.

Providing our production plans with material resources is one aspect of balancing. The second aspect is the balancing of deliveries of complex articles to consumers. As I already said, our products are involved with the creation of large-scale TETs, GES, and GRES. Plans for hydraulic generator deliveries must be coordinated with the deliveries of turbines, boilers and other complex equipment, and with the tempo of construction. There is no accurate estimate of dates and tempo. At the beginning of 1979 there were already three of our hydraulic generators and only one turbine at the Nizhne-Kamskaya GES. The hydraulic generators stood idle. We could have turned out other products which someone else was waiting for during this time.

There is yet another aspect--conforming our equipment to the standard of the manufactured articles. It is beginning to disturb us. The enterprise recently celebrated its 25th birthday. This is a young age for a plant but it is already old age for mechanisms and machine tools. Some 30 percent of the technical equipment has a service life up to 10 years, 35 percent--up to 20 years, and the remainder--more than 20 years. In the industry they are probably looking at us through those eyes which a quarter of a century ago were satisfying only 25-30 percent of our equipment requests.

/Question/ The improvement of production also depends on solving social problems. The decree emphasizes the role of the social aspect of planning. How does the plant intend to influence technical progress and production effectiveness through social development?

/Answer/ The solution to social problems has especially great importance for our plant, as well as for the other Siberian enterprises. Questions of labor resources and the securing of personnel are very keen for us. In the 10th five-year plan there was a decrease in the number of workers at the plant. The growth in production volumes is being achieved only because of an increase in labor productivity. However, the tendency toward a further drop in numbers worries us.

We have been busy with social planning, beginning with the 9th five-year plan. The development of an overall plan of socioeconomic growth for the 11th five-year plan is now going on. However, our plans have not always been supported by resources.

In 1979 the ministry did not allot us one ruble for housing construction. The construction of rest facilities is inadequately financed. For many years the plant has not been able to obtain permission to construct a palace of culture. Deputies of the Novosibirsk City Council have already appealed to Minelektrotekhprom concerning this.

A territorial council of electrical engineering enterprises has been set up in Novosibirsk. I was made the head of it. We feel that it will be more convenient for us to solve social development problems jointly. However, we have a right to count on the help of local soviet organs. The decree on improving economic operations provides for an increase in the role of these organs in solving social problems. It seems to me they could better coordinate the social development work of the enterprises. Thus, for example, we and another four plants of different departments are building a clinic on the banks of the Obskiy Reservoir. Each is waiting for someone else to be the first to build roads and utilities. We became the first and that is why we had to invest more money willy-nilly to prepare for construction. With good coordination one could efficiently establish a shared participation of each one, to determine who would build the boiler room, provide for lighting, etc.

It is of deep satisfaction to us that the solution to social problems is directly related to the possibility of obtaining high final national economic results. I feel that such an approach will yield a great return if the conditions for its realization are created.

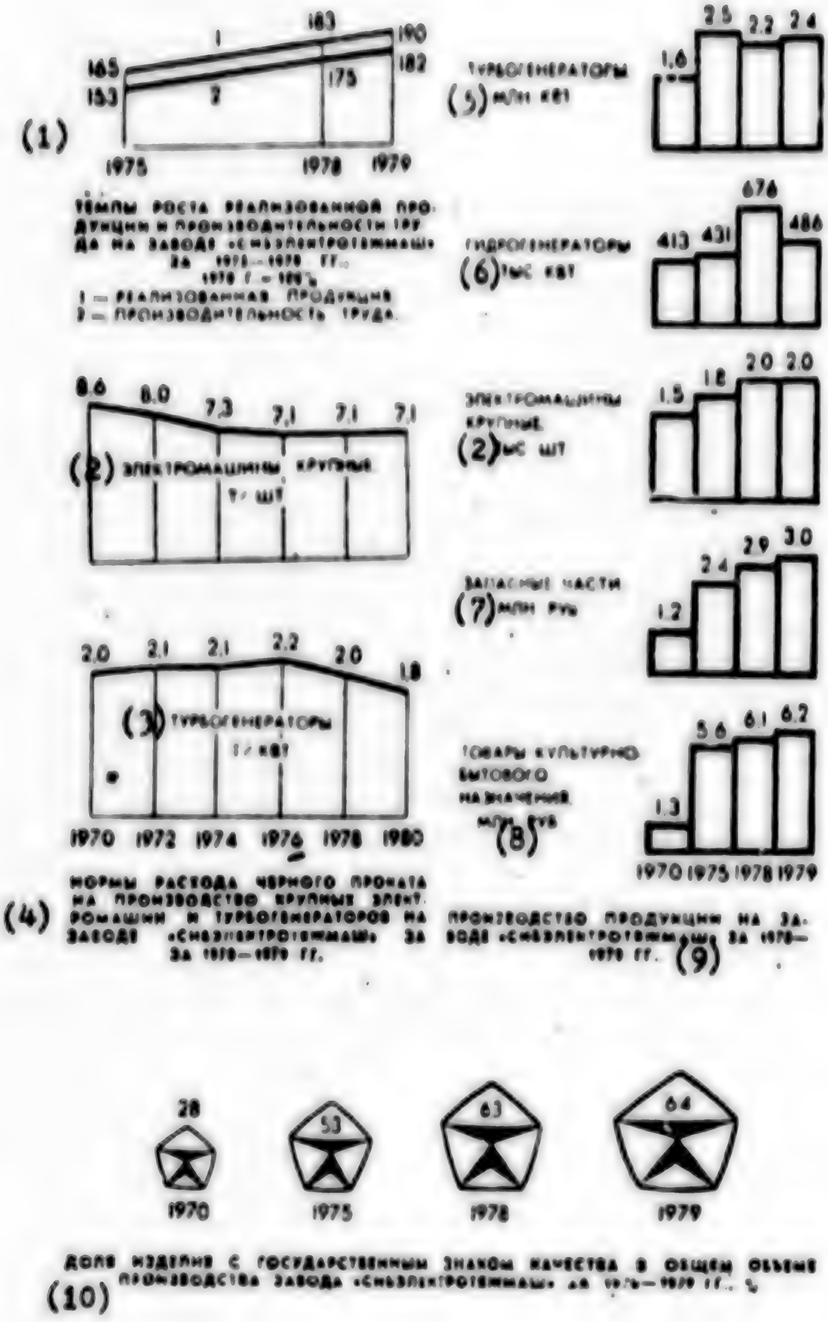

Figure 1.
[Key on following page]

Key:

1. Rate of growth of realized production and labor productivity at the Sibelektrotyazhmash Plant for the years 1975-1979,
   1970 = 100 percent
   1-realized production
   2-labor productivity
2. Electrical machinery, heavy, in tons per unit
3. Turbine generators, in tons per kilowatt
4. Norms for the expenditure of ferrous rolled metal for the production of heavy electrical machinery and turbogenerators at the Sibelektrotyazhmash Plant for the years 1970-1979
5. Turbogenerators, in millions of kilowatts
6. Hydraulic generators, in thousands of kilowatts
7. Spare parts, in millions of rubles
8. Cultural and personal purpose goods, in millions of rubles
9. Production output at Sibelektrotyazhmash Plant during the years 1970-1979
10. Proportion of articles with the state emblem of quality in the total volume of production of Plant Sibelektrotyazhmash during the years 1970-1979

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ENERGY CONSERVATION

BELORUSSIAN CONFERENCE DISCUSSES FUEL CONSERVATION PLANS

Minsk SOVETSKAYA BELORUSSIYA in Russian 13 Jul 80 p 2

[Unattributed article of the Belorussian Telegraph Agency: "A Rational Approach for Energy Resources"]

[Text] The questions of supplying the republic economy and the population with fuel, electric and thermal power during the autumn and winter season of 1980-1981 and improving the saving of these resources were reviewed at a republic conference held in Minsk. The conference was held in accord with the measures of the KPB [Belorussian Communist Party] Central Committee to carry out the instructions of the General Secretary of the CPSU Central Committee and Chairman of the Presidium of the USSR Supreme Soviet, Comrade L. I. Brezhnev on the successful fulfillment of the plans for capital construction and the production of industrial product during the concluding year of the Tenth Five-Year Plan.

The conference was attended by secretaries of the KPB obkoms, gorkoms and raykoms in charge of the questions of industry and construction, the managers of the industrial transport departments of the obkoms, the deputy chairmen of the oblast, city and rayon executive committees, the chairmen of the oblast and city people's control committees, a group of party organization secretaries, leaders and chief power engineers from industrial enterprises, construction sites and transportation, the leaders of republic ministries and departments, and responsible workers from the staff of the KPB Central Committee, the Belorussian Council of Ministers, the Belorussian Gosplan, the Belorussian Trade Union Council and the Belorussian Komsomol Central Committee.

A report was given by V. F. Mitskevich, first deputy chairman of the Belorussian Council of Ministers.

At the present stage, fuel and energy resources are one of the crucial factors in economic development and in improving the living conditions of the population. The availability of these resources and their rational utilization in a most direct manner influence the end results of social production.

In keeping with the strengthening of the economy, the role and significance of the fuel and energy complex are growing. With good reason particular attention was paid to this problem in the speech by Comrade L. I. Brezhnev at the November (1979) Plenum of the CPSU Central Committee, the decisions of which underlie the activities of all the labor collectives, the party, trade union and Komsomol organizations in the republic.

The Belorussian power system holds one of the leading places in the nation. Last year alone, we produced 32.5 billion kilowatt hours of electric power and 37.8 million gigacalories of thermal power.

The republic, like the other regions of the nation, has acquired a good deal of experience in the rational use of the fuel and energy resources. Here, as a whole, in 1979, 191,000 tons of fuel units were saved, 459 million kilowatt hours of electric power and 1,452,000 gigacalories of thermal power. Good results in saving power were achieved by the collectives of the Minsk Tractor Plant imeni V. I. Lenin, the Minsk ballbearing plant, the Minsk Machine Tool Building Production Association imeni S. M. Kirov, the Baranovichi Cotton Cloth Combine imeni Leninskiy Komsomol Belorussii, and many other enterprises. Nevertheless the past autumn and winter period was marked by difficult conditions.

The conference analyzed the reasons for the existing shortcomings. It was pointed out that instances of an inefficient and wasteful consumption of energy resources and the loss of fuel in storage and transporting were still not rare.

Specific tasks were set for the party, soviet and economic bodies in the republic to improve work in the area of the production and procurement of fuel, ensuring the continuous supply of energy, and strengthening the saving of fuel and energy resources. The ways and means were indicated for readying the enterprises and organizations of industry, construction, transportation and the municipal-household system ready for dependable operation in the autumn-winter season of 1980-1981.

The results of the republic conference were summed up by L. S. Firisanov, secretary of the KPB Central Committee.

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ENERGY CONSERVATION

MORE EFFICIENT MANAGEMENT OF POWER SYSTEM

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 18 Jun 80 p 2

[Article by V. Verzhbitskiy, deputy chief of the Main Economic Planning Administration of the USSR Ministry of Power and Electrification: "Tested by the Experiment"]

[Text] A particular feature of our work is that both the production and consumption of electric power virtually coincide in time. That is, our sector at any moment must produce as much electric and thermal power as is used by a consumer at the given moment. And the demand for energy, in contrast to the demand for the products of a majority of other sectors, changes not once a year, and not once a quarter, but rather daily and hourly.

Because of this and certain other particular features, the CPSU Central Committee and the USSR Council of Ministers in a decree on improving the economic mechanism have put power among those sectors which, considering their specific features, must have special planning indicators and economic standards.

The work is complicated and crucial. However, the changeover to the new system was not a surprise for us. We had long been preparing for it. Since 1975, an extensive economic experiment had been underway in the sector. A combination of planning and calculation indicators was worked out which would encourage dependable and efficient operations to the greatest degree.

Several years ago each plant was forced to come up with a plan for the generating of electric power at any price. The collectives endeavored to put into service all the equipment that there was, including the old and uneconomic which would consume 2- or 3-fold more fuel than as an average for the ministry. Such equipment was needed not for permanent operation but rather for covering the peak loads in the power systems. But the equipment operated virtually continuously, and fuel was used up without any particular need.

In the course of the experiment, it was decided to exclude the output of power in physical units for each production association or power plant from among the basic indicators. This indicator became only a calculated one. And the result was not long in coming. Over the past 5 years, fuel consumption per kilowatt hour of electric power declined by 13.8 grams. Of course, here also was felt the completion of more advanced power units. But a substantial share of the savings must be considered coming from the experiment. And as a total for the sector, over this period the power plants saved around 41 million tons of conditional fuel units.

In a word the experiment succeeded. And now for each enterprise individually "output of electric power in physical units" remains only a calculated indicator. And it is planned solely for the sector as a whole in order to determine the demand for fuel resources and the necessary completion of new production capacity.

Instead of the quantity of electric power, now in first place is the important indicator of the proportional consumption of fuel for the generation of thermal and electric power. Scientifically based proportional consumption rates are being introduced considering the types of equipment and its parameters.

We view the elaboration of such standards as a question of primary importance. Up to now we have had frequent instances when the planning departments of the production associations adjusted the technical and economic indicators, adapting them to what had been achieved. Clearly there would be no incentive for the collectives to improve them. Normative planning will make it possible to objectively assess the operation of each enterprise.

But while a quantitative overfulfillment of the plan is now not encouraged, how do things stand with satisfying the demand of the national economy for electric and thermal power? What economic lever will ensure the necessary load schedule of the power plants? Such a lever would be an indicator of the readiness of the equipment to carry a load, or, as it is termed, the coefficient of operational readiness.

This coefficient is higher the longer the period the equipment of the stations and networks operates without overhaul. It depends upon the quality of equipment operations, upon the quality of overhauls and preventive measures, as well as upon the technical progressiveness of the units. Thus, in the first quarter of the present year, the coefficient of operational readiness for the power units having a capacity of 800 megawatts increased by 9.5 percent. This provided an additional 1.6 billion kilowatt hours of electric power. Here also was greater reliability of power supply and an increased return on investment of the power plants.

As a whole for the sector, the technical improvements and other measures carried out last year increased the capacity of the on-stream power plants by 2 million kilowatts. Such an addition undoubtedly would make it possible to respond more flexibly to the constantly changing demand of the national economy for electric power.

The sector also has its own particular features in evaluating labor productivity, since the necessary volume of power production changes because of factors that do not depend upon the collectives. Moreover, it is essential to service and maintain not only the operating equipment but also the reserve. For this reason the ministry will plan labor productivity and the number of personnel for its associations using standards set proceeding from the quantity and complexity of the maintained equipment. This indicator does not have direct bearing upon the quantity of generated energy. But it does encourage the collectives to make more rational use of the labor resources.

Total profit operates as a general indicator which most fully describes the efficient use of labor, material and other resources.

But it must also be said that in improving the economic mechanism we have encountered a number of difficulties. Thus, the energy production volume is not always correlated to the limits of its consumption. Up to the present the ministry has been unable to balance the energy production plans with the fuel supply plans. In particular, in determining the coal consumption rates for the sector, the USSR Gosplan has not sufficiently considered the actually existing trend toward a deterioration of solid fuel As a result, last year alone in calculating the caloric value we failed to account for more than 5 million tons of conditional fuel, and this was the equivalent of losing 15 billion kilowatt hours of electric power. Nevertheless, the ministry is taking measures which in the near future will make it possible to burn the lower-grade types of fuel. A major reconstruction is being carried out at the Voroshilovgrad, Starobeshevo and Zmiyev and other GRES.

It need not be proven that under the new management conditions the precise balancing of the plans will be of decisive significance for the successful operation of the enterprises and sectors of the industry. Obviously, the workers of the USSR Gosplan must take effective measures to ensure such balancing in practice.

At a recent meeting of the CPSU Central Committee on the questions of power development, we were confronted with specific tasks aimed at the accelerated development of the fuel and energy complex and a rise in its efficiency. Here an important role must be played by an improving of the sector's economic mechanism, and we see this as the guarantee for the precise organization of work in all levels of power production, in actual operations, in science and in power construction.

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ENERGY CONSERVATION

ECONOMIC REVIEW OF FUEL, IMPORTANCE OF FUEL TRANSPORTATION EXAMINED

Moscow PRAVDA in Russian 28 Jul 80 p 2

[Article by N. Shinkarev, Chief of the Transport Department of the State Committee of the USSR on Science and Technology, candidate of technical sciences]

[Text] Efficient use of fuel-energy resources is one of the primary problems. Comrade L. I. Brezhnev noted at the November (1979) Plenary Session of the CPSU Central Committee: "Regardless of the rates at which we develop power engineering, fuel and energy conservation will be the most important state task in the future. Therefore, the plans must include the increasing tasks of replacing obsolete, extremely energy-consuming equipment, acceleration of technical progress and extensive use of energy-conserving technology and increasing the heat conservation of industrial structures and housing. The efforts of every collective and of each worker should be directed toward saving fuel and energy."

The General Method

Transport is one of the country's largest users of energy resources, including oil-based fuel--diesel, gasoline and kerosene--with high heat value. During the past 15-20 years specific energy consumption was reduced by a factor of four in railway transport, by a factor of 1.8 in maritime transport, by a factor of 2.4 in river transport and more than 40 percent in truck transport. This was achieved mainly by redesign of transport and introduction of qualitatively new power plants which have considerably higher fuel economy.

Thus, steam piston machines have been almost completely replaced by diesel and electric drive in railway and water transport. Powerful steam turbines are being used ever more extensively in ocean-going ships. The degree of compression of internal combustion engines of motor vehicles is being increased and the specific weight of diesels in the motor fleet is increasing. As a result the fraction of transport which consumes the country's fuel-energy resources has decreased from 19 to 10 percent. However, it still remains significant and reserves for economizing on fuel and electric power must be sought and utilized in this developed sector of the national economy.

It should be noted that the specific consumption of energy resources with different types of transport fluctuates very appreciably. Thus, it is 19 or more times higher in motor transport compared to railway transport and is 14 times higher compared to river transport. This cannot help but be taken into account in the distribution of mass goods among them.

The ministries and agencies which operate transport and which develop the hardware for it will be faced during the comping five-year plan with important problems in the matter of increasing the energy efficiency of the entire freight and passenger transport system in our country. What will be the main trends of this work?

Bearings, Rails and Rail Cars

For the railroads, this is primarily improvement in organization of the transport process and operation of rolling stock and improvement of electric locomotive, diesel locomotive, rail car and other hardware designs. One of the significant reserves of fuel and electric energy economy is conversion of the entire rail car fleet to roller bearings. Approximately half of the rail car fleet is now equipped with them. If this process is completed during the next 6-7 years, the specific energy consumption can be additionally reduced by more than five percent. What is required to do this? Mintyazhmash [Ministry of Heavy Machine Building] and Minavtoprom [Ministry of the Automotive Industry] must organize production of sufficient numbers of bearing assemblies and only roller bearings must be used in new rail cars.

The improvement of railway tracks must also be continued. Specifically, the length of jointless track on an improved road bed must be increased. In this regard industry will be faced with the problem of increasing the output of heavy types of rails and the Ministry of Railways will be faced with accelerating work on repair and reconstruction of railroad lines. If the fraction of jointless track can be brought up to 45 percent, this will permit a decrease of the specific consumption of energy resources by one percent.

Saturation of the rolling stock fleet with eight-axle rail cars in combination with locomotives of increased power will also contribute to this goal. Mintyazhmash must accelerate work to produce them while MPS [Ministry of Railways] must adopt vigorous measures to improve the repair and maintenance of rolling stock, especially of diesel locomotives.

Many reserves for reducing energy consumption are hidden in recovery (reverse production) of electricity on sections which utilize alternating current. A few words here for Minelektrotekhprom [Ministry of the Electrical Equipment Industry]--serial production of electric locomotives of type VL80R must be provided and development of electric equipment for AC electric trains with regenerative braking must be accelerated. According to calculations of specialists, the use of recovery in optimum volumes would permit an annual saving of 1.1-1.5 billion kilowatt-hours of electric power.

Energy losses in the contact system and at traction substations can also be reduced by using converters with high-class valves and natural cooling, transformers with improved parameters and also automatic voltage regulation, and these measures can be real provided that the corresponding equipment is delivered to the enterprises of Minelektrotekhprom.

I would like to cite yet another figure. A total of 11-12 percent of the established power of a locomotive now goes to auxiliary machines in AC electric locomotives. At the same time there are already technical solutions which permit this indicator to be reduced to 6-7 percent. Use of them opens up the opportunity to save hundreds of kilowatt-hours annually on each modified electric locomotive.

The Green Light to Diesels

More than half of the energy resources consumed by all types of transport is used by trucks. Hence, it is understandable how important it is to seek and find opportunities to save fuel. Moreover, we are talking in the given case about the most valuable liquid organic fuel.

Conversion of the motor fleet to diesel fuel will result in the greatest success. It permits a saving from 25 to 35 percent of fuel. The process of replacing internal combustion engines with diesel engines has already begun, but it must be accelerated considerably. Of course, this measure requires the corresponding capital investments, but they are generously repaid. ZIL and GAZ trucks and LIAZ, LAZ and KAVZ buses can be equipped with diesel engines. The corresponding types of diesels have already been developed for some vehicles. Minavtoprom must provide production of them according to needs and must also concern itself with spare parts for operation and repair. At the same time specific fuel consumption--both by gasoline and diesel engines--must be reduced.

Fuel consumption by motor vehicles depends largely on road quality. It has been established, for example, that a paved road saves 25-30 percent of fuel. This is yet another important argument in favor of the economic feasibility of improving the quality of road pavement. A significant fuel saving can also be achieved by improving the technical state and operation of vehicles and by increasing the freight-capacity use and mileage of trucks. Moreover, liquid fuel is also saved by converting part of the freight-hauling fleet to liquefied gas. Glavmosavtotrans [Main Administration of Automobile Transportation of the Mosgorispolkom] has extensive positive experience in this matter. The ministries of motor transport of the union republics should more actively utilize this experience.

On the whole, planned, sequential work for further reduction of fuel consumption by motor transport will permit a saving of tens of millions of tons of comparison fuel by the end of the 11th Five-Year Plan compared to the norms of the 10th Five-Year Plan. However, to achieve this, the joint efforts of a number of ministries and agencies which operate motor transport and which produce the corresponding equipment are required.

The Tasks of the Fleet

With regard to the maritime transport fleet, the main trend of fuel economy here primarily includes introduction of more efficient diesels and steam turbines. There is yet another method--increasing the average cargo capacity of ships. It can be increased during the next few years by approximately 35 percent for diesel-electric ships, which will permit a reduction of specific fuel consumption by them by 7 percent. At the same time scientists and designers must work on improving the efficiency of the main power plants of ships.

The operation of ocean-going vessels must be improved. We are talking primarily about increasing the cargo utilization factor and also reducing the relative anchorage time in ports for loading and unloading. Moreover, during the 11th Five-Year Plan the maritime fleet must equip itself with new fuel preparation systems for diesel power plants, standardized systems for utilization of oil and steam wastes and cleaning of power equipment.

Fuel economy can be achieved in river transport primarily by increasing the fraction of the barge fleet. It should transport a greater part of mineral-construction and other mass bulk cargo in the future.

An important incentive for economizing on energy resources by all types of transport is scientifically based standards of specific fuel consumption with regard to the advances of scientific and technical progress and improvement in organization of shipments. Calculations made by specialists of the Institute of Complex Transport Problems attached to Gosplan of the USSR show that consumption of energy resources can be reduced by 10 percent in railway transport, by 8 percent in maritime transport, by 7 percent in river transport and by 22 percent in truck transport.

Analysis of ways to increase the energy efficiency of transport shows that the determining role will be played here by introduction of progressive equipment and advanced technology. The State Committee of the USSR on Science and Technology jointly with interested ministries and agencies are working out programs to solve the most important scientific and technical transport problems for 1981-1985 and for the future up to 1990. Development of new types of locomotives and specialized rail cars for the railroads, progressive types of ships for the maritime and river fleets and also other equipment having higher characteristics is provided.

The ministries and agencies responsible for development of new transport equipment and especially Mintyazhmash and Minavtoprom, must adopt measures to strengthen the production-experimental base and accelerate the development and serial production of new equipment. The operating ministries in turn must introduce new advances of science and technology more rapidly.

A long-term complex program for development of transport is being worked out on the eve of the 26th party congress with the participation of all interested ministries and agencies. It has been called upon to solve with maximum efficiency the problem of supporting the country's national economy with shipments with a simultaneous increase of the energy conservation of the transport process.

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ENERGY CONSERVATION

EFFICIENT FUEL UTILIZATION REPORTED

Riga SOVETSKAYA LATVIYA in Russian 21 May 80 p 2

[Article by A. Guber, NOVOSTI PRESS AGENCY economics reviewer: "An Important Potential for Growth"]

[Text] Consistent adherence to a program of economies and efficient utilization of fuel and energy resources are important tasks for each labor collective. As was pointed out at the 25th Congress of the CPSU, "Regardless of the increase in our social wealth, thrift and the most rigorous economies remain a most important condition for the development of our national economy and for improving the well-being of our people."

Unlimited increases in the extraction and consumption of fossil fuels are not only impossible, but also ecologically harmful and economically unjustified. It is now clear to the whole world that waste of fuel and energy resources brings with it no positive good. The energy crisis, which has triggered an avalanche of "emergency" measures and even more talk about them, has reminded the West of this truth. But we have tackled the problem ahead of time in this country--simultaneously with the rapid growth in our production of all types of fuels and our possession of the world's largest fuel-energy complex.

But economizing on fuel is itself an expensive matter. According to the experts' calculations, reducing consumption by one ton of standard fuel requires an average capital investment of 60 rubles. But increasing production by the same ton (plus the expenditures entailed in transporting it) would be a minimum of 2-1/2 times more expensive.

As a result of economies we have achieved in this country, relative demand is dropping at an annual rate of 20-25 million tons of standard fuel as compared with norms for the preceding year. This translates into a minimum of 14 million tons of oil.

But this is not enough. Calculations indicate that in the years immediately ahead we will have as a minimum to cut organic fuel consumption in half as compared with the level planned for 1980.

The primary way we have of achieving fuel and energy savings is to reduce their consumption in industry, their chief consumer. I will give some examples.

Ammonia production on the basis of its new technological system (electric-drive turbocompressors are being substituted for steam-drive units) is making it possible to reduce the norm for electric-power consumption per ton of production 6-fold and more, while indirect thermal power consumption has been stopped altogether. Divinyl production (it is essential in the manufacture of synthetic rubber) using the single-step butane dehydrogenation method is cutting specific electric-power consumption in half as compared with the two-step process.

The manufacture of cement by the dry method yields a product of high quality and at the same time consumes half as much fuel and energy as the wet method.

Specific fuel and energy consumption may be reduced 20-30 percent in machine building and metal working by improving the technological processes involved.

Similar examples could be cited for any other industry. Let me emphasize that what we are speaking of here is savings with a simultaneous improvement in the entire technical level of production as well as in product quality.

Reduction of specific consumption of fuel for the production of one kw hour of electric power by only a single gram results in a national saving of a million tons of standard fuel. Over the period 1976-1979 this consumption was reduced by 9 grams.

Utilization of the heat contained in waste water from industrial enterprises, electric power plants and so forth will make it possible to reduce consumption of fuel to meet heat-supply requirements no less than 30 percent as compared with that required for heating boilers. The compressor heat pumps operating on freon required for this purpose will not only save fuel, but also generate ecologically clean energy.

Gasoline engines consume 120 grams, diesel engines 68 grams, of fuel per ton-km. An increase of 1 percent in the proportion of diesel-powered motor vehicles used for cargo and passenger transport yields a saving of 1 million tons of standard fuel.

Economical consumption of various materials is yet another way to reduce fuel consumption. A saving of, say, 1 million tons of rolled metal products is reflected in a reduction in the consumption of energy resources by 1 million tons of standard fuel.

When we are on the subject of efficient utilization of fuel and energy resources, we cannot but mention the great potential at the disposal of our fuel extraction and production industries themselves.

Let us start with the problems involved in increasing yields from petroleum formations. Eighty-five of every 100 tons of petroleum are now extracted in the USSR employing a variety of methods of exploiting deposits. The Soviet Union leads other oil-producing countries with respect to the scales on which these methods have been introduced. But the ultimate ratio of petroleum yield from basic deposits nevertheless does not exceed 0.5. Half the petroleum, sometimes more, is not extracted. Specialists are sure that the amount of petroleum extracted can be increased substantially; the experience accumulated in using physical-chemical and thermal methods for this purpose does in fact provide convincing evidence for this assertion.

Utilization of petroleum (casing-head) gas is yet another problem. Ninety-five percent of the petroleum gas is used in the Tatarskaya and Bashkirskaya ASSRs, in Krasnodarskiy Kray and in Azerbaijan. But even though we have made much progress overall in this area in recent years, we are still suffering great losses of this most precious resource.

Reduction of coal losses, especially in the course of underground mining operations (these losses are on the average three times less in open-pit mining) also promises great gains. I might add that coal is not the only thing lost in the mines, but methane as well. We are now recovering 1.3 billion cubic meters of methane each year (roughly 70 percent of this amount in the Donbass), which is less than one-fifth of what could be recovered.

Fuel economy and efficient fuel utilization have one other most important aspect, the ecological. The fuel-energy complex is responsible for roughly 60 percent of the harmful effect produced on the environment. According to preliminary analysis, each ton of standard fuel saved within its use structure will reduce harmful emissions into the atmosphere by 30-50 kg (we are speaking in this instance of sulfur and nitrogen oxides, ash and so forth). None of this takes into consideration the damage done to the environment during the fuel extraction process.

Everything we have said is evidence of the fact that, taken as a whole, what we are talking about here is a most important problem, a problem at once economic, social and ecological. Its solution will require the application of material and technical means, an effective system of incentives and new state standards governing energy efficiency. To put it briefly, what we need is a unified plan, a single, comprehensive, integrated, special-purpose national program for saving fuel and energy resources and which specifies those responsible for implementing it, the concrete measures to be taken and the target dates and expenditures entailed in its implementation.

In fulfillment of the responsibility with which it has been charged by Gosplan USSR, such a program is being developed by the All-Union Scientific Research Institute of Complex Fuel and Energy Problems together with the ministries, departments and gosplans of the union republics.

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FUTURE ENERGY SOURCES FOR USSR, UKRAINE ANALYZED

Kiev POD ZNAMENEM LENINIZMA in Russian No 12, Jun 80 pp 30-35

[Article by A. Alymov, chairman of the council for the study of the Productive Forces of the Ukrainian SSR and academician of the UkSSR Academy of Sciences: "Prospects for Development of the USSR's Fuel and Energy Complex"]

[Text] The fuel and energy complex has a decisive role in further developing social production and increasing its effectiveness, in speeding up scientific and technical progress, and in increasing labor productivity. As the productive forces develop, the demand for energy increases correspondingly.

Statistics testify that world consumption of energy has been doubling almost every 20 years. Because of the high rate of growth of energy consumption and the relatively limited amount of fuel resources, the question of the prospects for developing the fuel-and-energy activity is acquiring paramount importance.

Fuel and energy resources have been distributed extremely unevenly on our planet. Some countries have enormous fuel reserves at their disposal and export fuel, while others, including many developed capitalist countries, are compelled to import oil and gas in large quantities. While an energy crisis has been shaking the world of capital for 7 years now, the production of energy bearers in the West has remained at almost the same level. At the same time, in the Soviet Union total production of energy bearers (a computation based on standard fuel equivalents at 7,000 kilocalories per ton) increased from 1.42 to 1.85 billion tons per year during the years 1973-1979.

The USSR is the only industrially developed country in the world whose national economy is provided completely with its own fuel and power resources. Its land contains about 50 percent of the world reserves of coal, and it is in first place in the world in explored natural-gas reserves. The USSR mines more than one-fourth of the world's coal and recovers 20 percent of its crude oil and gas condensate and more than 26 percent of its gas.

The country's mighty fuel and energy complex, which provides for the extraction and processing of these resources, combines the oil-recovery and oil-refining branches, the gas and coal industries and the shale and peat industries, as well as power engineering. Together, they form the largest multibranch system of the national economy, in which about 35 percent of all fixed capital is concentrated and where every tenth industrial worker labors.

The Communist Party consistently holds to a policy of constantly strengthening and expanding the fuel-and-energy complex. The broad program for accelerated development of electric-power engineering and the fuel industry that was contemplated by the 25th CPSU Congress is being carried out successfully in the country. In recent years new power units have been put into operation at the Chernobyl'skaya, Kurskaya, Leningradskaya, Beloyarskaya, Armyanskaya and Bilibinskaya nuclear electric-power stations. Large hydroelectric units have gone into operation at the Sayano-Shushenskaya, Ust'-Ilimskaya, Nurekskaya and other hydroelectric power stations. Construction of the Zaporozhskaya and Uglegorskaya thermal electric-power stations, which have the highest capacity in Europe, has been completed. The first phase of the Zapadno-Donbasskaya underground mine in Dnepropetrovskaya Oblast has begun to operate, and new capacity has been introduced at the Bogatyr' strip mine in Pavlodarskaya Oblast, the Tentetskaya underground mine in Karagandinskaya Oblast and other coal-industry facilities.

A high-capacity strip mine at Kansk-Achinsk is now being constructed, and mining of the inexpensive coal of the Ekibastuz and Karaganda deposits is being expanded, as is the mining of Kuzbass [Kuznetsk Coal Basin] coal. In West Siberia, the hugest regional production complex--the main base for recovering oil and gas--is being established. Oil recovery is rising in the Komi and Udmurt ASSR's, the Georgian SSR and Sakhalinskaya Oblast. Fields in Tyumenskaya Oblast's north are giving increasingly large amounts of gas.

On the whole, more than a third of the capital investment set aside for industry is being allocated to the development and maintenance of the fuel and energy complex. As a result, in the last 15 years alone the generation of electricity and the recovery of oil (including gas condensate) have almost tripled, and gas recovery has more than quadrupled.

In 1979, 719 million tons of coal were mined, 586 million tons of crude oil and gas condensate and 407 billion cubic meters of gas were recovered in the USSR, or about 94.3 percent of all the country's primary fuel and energy resources. About 2 percent of the resources consist of peat, shale and firewood and 3.7 percent is contributed by hydroelectric and nuclear power installations.

These resources completely satisfy requirements for the development of our industry and are a firm foundation for further economic and social progress of the USSR.

The Soviet people have a right to be proud in their achievements in developing the country's economic base. In the modern era, problems of growth of the most important sector of our economy have not lost their urgency and are constantly under the scrutiny of the Communist Party. In speaking at the November 1979 CPSU Central Committee Plenum, CPSU Central Committee General Secretary and Chairman of the USSR Supreme Soviet Presidium Comrade L. I. Brezhnev set forth the basic propositions about the prospects for our energy system. "It is necessary," L. I. Brezhnev emphasized, "to think out again and again the whole complex of energy problems." Comrade L. I. Brezhnev set as paramount tasks an essential improvement in the country's fuel and energy balance and the development of a scientific, deeply thought-out and economically substantiated energy program for the long term.

Our country's energy resources are practically inexhaustible. However, this does not mean that there are no problems in supplying branches of the USSR's economy with fuel and energy. There are many such problems and among the more serious ones are unevenness in the distribution of fuel and energy resources throughout the country and the great remoteness of the large fuel bases from the consuming regions. It should be noted that almost 90 percent of the bases are in the uninhabited eastern and northern regions, which have extremely severe natural and climatic conditions. These are, today, the main sources of oil and gas for the high-capacity industry of the European part of the USSR, where more than three-fourths of the country's productive forces have been concentrated and only about 10 percent of the fuel and energy resources are found. Because of this, the transfer of fuel resources over great distances is a most important task of the national economy.

It should be noted that, while from the technical point of view the situation is more favorable in the area of transporting oil and gas, the transmission of electricity over great distances requires the solution of a number of fundamental scientific and technical problems. Scientific-research and design organizations are working today to create superhigh-voltage DC electric-power transmission lines that will be able to transfer large amounts of electricity from the eastern regions to the European part of the country, a distance of 3,000-3,500 km or more. This will enable energy to be transmitted in the form of electricity from the regions of the Ekibastuz and Kansk-Achinsk coal basins, since transporting coal from these basins to the country's European portion is not economically feasible.

It is planned first to introduce into operation the 2,400-km 1,500-kV DC Ekibastuz-Central Economic Region power transmission line. It will enable the transfer of about 42 billion kw-hr of electricity per year. Moreover, development of this line will enable conversion to the erection of lines for the transfer of DC current over a distance of 3,500-4,500 km.

A design has been developed for construction of a 2,250-kV DC power line from Itat to Yug, whose introduction into operation will enable the Ukraine to receive 78 billion kw-hr of electricity annually.

The interests of further economic and social progress and of creating the materials and equipment base for communism require the judicious and thrifty use of our wealth, most rational application of each gram of oil and coal, each cubic meter of gas and each kilowatt of electricity, as well as the organization of a universal and constant campaign for strict economy of fuel and energy resources. As L. I. Brezhnev emphasized at the November 1979 CPSU Central Committee Plenum, whatever the pace at which we develop energy, thriftiness in heat and energy from now on will be a most important nationwide task.

The implementation of an energy-conserving policy is an indispensable prerequisite to further successes in Soviet economics. It is equivalent to obtaining additional fuel resources. Experience indicates that a potential for cutting fuel losses exists at all stages--from extraction of the fuel to its use--through the development and introduction of new industrial processes that are less energy-intensive and more improved from the standpoint of energy, and so on.

As the date of the European Economic Commission of the UN indicates, irrevocable losses of primary energy during the production and use thereof comes to about 86 percent, 59 percent of it in the extraction stage and 27 percent at the final stage of use.

Out of 1.6 billion tons of standard fuel equivalent allocated in our country this year to production and operating needs, about 900 million tons will be expended nonproductively, that is, the efficiency factor for fuel and energy resources will equal about 43 percent.

Industry consumes the largest amount of fuel--62 percent of total consumption. Municipal and housing activities and the populace are the second largest consumers. Their share is 11 percent of the fuel used in the country. The remaining resources--27 percent of the total--is expended on the in-house needs of the fuel-extracting industries, in transport, in agriculture, and for other purposes.

It should be emphasized that, given the enormous consumption of fuel and power resources, a reduction in the consumption thereof by just 1 percent in the country will save about 17-18 million tons of standard fuel equivalent per year. Hundreds of millions of rubles will thus be saved, since expenditures on measures to cut fossil-fuel consumption is one-half to two-thirds the expenditures required to extract and ship that amount of fuel.

Thus, the main reserves for saving fuel are found in industry and in municipal and domestic-services activities.

A large amount of fuel can be saved by raising the efficiency of its use. The experience of advanced workers indicates that this can be increased 1.5-fold to 2-fold by improving industrial processes and facilities. Improvement of operating regimes and of all the parameters of electric-power stations, improvement of the structure of the generating capacity, and equipment modernization will yield major fuel savings. In particular, modernization of power units of 200-300 Mw could raise their efficiency factor by 1-2 percent and save hundreds of thousands of tons of fuel annually.

Increases in fuel utilization effectiveness can be achieved also by improving heat-supply systems, including an increase in the generation of electricity during the consumption of thermal energy. Through this factor and by other means, specific fuel consumption in generating electricity at a Minenergo [Ministry of Power and Electrification] TETs was reduced from 275 to 252 grams of standard fuel equivalent per kw-hr during the last decade. In so doing, specific fuel consumption was reduced also in producing heat energy.

Raising the level of use of secondary energy resources in the ferrous and nonferrous metallurgical, oil-refining, chemical, petrochemical and other branches of industry, where today these resources are used by only 40 percent, is an important area for saving fuel.

Fuel can also be saved by a reduction of consumption norms for its transport, improvement of the thermal-insulating characteristics of materials used in construction and the replacement of obsolete, energy-intensive equipment in a number of branches of industry. Major opportunities for saving fuel are concealed in improvement of heat-supplying systems and in the elimination of small, unprofitable heating installations that overexpend fuel resources substantially.

The reserves for saving fuel are vast.

Consequently, the economical and effective use of fuel and energy resources is a most urgent task for the national economy. Capital investment that is aimed at executing measures for saving energy resources will provide for a saving thereof over a long period of time and will be most effective. This confirms the desirability of developing and implementing integrated programs for raising the utilization effectiveness of and for saving fuel and energy resources.

The Ukrainian SSR is now using a fifth of the energy resources consumed in the country, and it is expected that in the next 15 years the requirements of the republic's economy for energy resources will grow more than 1.5-fold. At present, a substantial portion of these requirements is being satisfied through the UkSSR's resources base.

Last year 204.7 million tons of coal were mined, 8.3 million tons of crude oil and gas condensate were recovered, and 231 billion kw-hr of electricity were generated in the republic.

Our republic's fuel and energy complex is being developed as a component part of the Unified Fuel and Energy Complex of the USSR. The fuel industry, whose fixed industrial-production capital represents 14.2 percent of the cost of all the productive capital of the republic's industry, occupies a main place in it.

The coal industry plays a decisive role in the Ukrainian SSR's fuel industry, yielding more than 70 percent of its gross product. The cost of the fixed productive capital of this branch is 82 percent and the number of industrial-production personnel is 96 percent of all workers of the fuel industry.

The dominant position of the coal industry is explained by the desirability of a gradual reorientation of the fuel balance of the republic's economy to coal, the geological reserves of which will enable the mining thereof to be developed in correspondence with the rising requirements for energy resources. Many branches of the national economy are being based today and will be based in the future on a coal-industry foundation.

All this testifies to the necessity for further development of the Donets Coal Basin--the Ukraine's main fuel base. It is also desirable to further increase the capacity of its coal-mining enterprises and to create a definite reserve of this capacity.

This task is not simple. In recent years coal mining in the Donets basin has been accompanied by a reduction of the main technical and economic indicators because of complication of the mining-geology conditions for working the coal seams. Because of the increasing depth of mining work, expenditures are increasing for the drive against greater gassing and against increases in rock pressure and workspace temperature.

At the same time, despite more favorable conditions for mining coal in the eastern regions, its use in the UkSSR is economically less desirable than Donets coal because of the great transport expense. The use of coal mined in the eastern regions is economically desirable only where that coal is used to generate electricity that is sent to the European part of the country. However, in this case the electricity transmitted will not be very much cheaper than that generated on the basis of Donets coal.

Consequently, in view of our scientific and technical progress, an essential improvement in technical and economic indicators is necessary in the mining, transporting and use of coal by the use of basically new technological solutions, the development of measures for the integrated use of coal, and prevention of pollution of the environment during the combustion of coal. The solution of these tasks will enable the fuel and energy base itself to be greatly strengthened.

In order to keep the republic's economy completely supplied with its own reserves of oil and gas, it is necessary to expand geological exploration with a view to discovering new deposits, converting reserves from the hypothetical categories to the recoverable categories, and increasing the total amount of hypothetical reserves as the basis for industrial raw materials and as a reserve energy supply for the republic's economy beyond 1990.

Despite the execution of measures for developing the republic's fuel and energy complex, it is contemplated that in the long term the pace of growth of the UkSSR's economy will greatly exceed the pace of increase in the production of its own energy resources.

Because of this, the question arises: should the republic strive to supply itself with its own energy resources? There is one answer to this question: of course not.

The Ukrainian SSR is being developed as part of a single national-economic complex, and its requirements for energy resources are being satisfied not only through its own base but also from the Union-wide fuel and energy resources with which our country is completely provided.

Because of scientific and technical progress, electrification plays a decisive role in developing the country's productive forces. It was remarked at a conference of power-engineering construction workers and workers of power-engineering and power-machinebuilding enterprises and institutes that was devoted to the development of power engineering, which convened in the CPSU Central Committee at the start of June this year, that our party, since the first years of the formation of the Soviet stage, has consistently followed a policy of electrifying the country and of developing power-engineering at an outstripping rate. On that basis, the technology of power generation and the structure thereof are being improved, and the integrated mechanization and automation of power-engineering processes are being raised. The wide use of electricity enables the population's working and living conditions to be improved and a large number of economic and social questions to be solved.

The development of electric-power engineering has exerted a substantial influence on formation of the branch structure of the Ukrainian SSR's economic regions--on an increase in the production of nonferrous metallurgy and of some subbranches of ferrous metallurgy of the Donets-Dnepr Economic Region. The creation of new arterial and distribution power-transmission lines and an increase, based thereon, of power-supply centralization, has become an important prerequisite for developing, in economic regions that have few reserves of energy resources (the Southwest and the North), the chemical, oil-refining and other branches of industry.

An increase in the supply of electricity opens up wide possibilities for introducing new and more improved industrial processes based upon electrophysical and electrochemical methods for obtaining and processing materials. These include the processes of electrolysis in nonferrous metallurgy, electroslag remelting, electrothermal processes, the ultrasonic, electron-beam and electrochemical treatment of metals, various types of welding and so on.

Electricity is being used increasingly widely to create comfortable working and living conditions for the people. When an energy bearer is more effective, it supplants fuel in many production and domestic processes. In the household, for example, a systematic conversion from the use of natural gas to the use of electricity is planned for food preparation.

An increase in energy consumption in the republic has led to an increase in the share of electricity in the fuel and energy balance of the UkSSR, from 7.6 percent in 1970 to 10 percent this year. For the UkSSR as a whole, the share of electricity in the total energy consumption during the past 15 years almost doubled.

At the same time, the rate of growth of consumption of electricity in industry was reduced somewhat in recent years because it was being consumed mainly for powering processes. The level of electrification of these processes has now reached its economically justified value, and now the basic direction for further electrification in industry is an increase in the use of electricity in technological processes. The introduction of new technology is associated with a qualitative restructuring of production and it occurs at a slower pace.

Acceleration of technical progress in the country's economy requires further development of the electric-power base.

It should be considered that the development and distribution of electric-power facilities are functions of such factors as the locally available reserves of fuel and energy resources, the consumers of electricity, and technical progress in the transmission of electricity over distances, as well as the ecological factor.

A set of problems must be solved in order to further develop our republic's electric power. First is determination of the desirability of developing thermal energy by the erection of condensation and district-heating electric-power stations. Second is the accelerated development of nuclear power and determination of the rational number of nuclear-powered stations with thermal-neutron reactors to be erected, and later, the number with fast-breeder reactors to be erected. Third is substantiation of the necessary amounts of fuel and electricity to be obtained from the country's eastern regions.

In the long term, electric power will be developed increasingly by the construction of nuclear electric-power stations. According to preliminary data, they will generate about 40-45 percent of all electricity. Because of this, improvement of the technology and equipment for the use of existing nuclear-fuel resources, with a view to transferring to the use of fast-breeder reactors is an important problem. This will permit nuclear fuel reserves to be used more completely. At present, efforts by Soviet scientists are solving this problem successfully.

The data of foreign specialists that testify that the use of thermal-neutron reactors in all countries of the world can save 30 billion tons and fast-breeder reactors can save 2,180 billion tons of standard fuel equivalent, which are twice the reserves thereof, are of interest.

The introduction into operation of the Leningradskaya, Kurskaya, Chernobyl'skaya and Novovoronezhskaya AES's, which have reactors with a capacity of 1 million kilowatts each, opens up wide prospects for the construction of standard nuclear electric-power stations in the USSR. This will enable specific capital investment to be reduced and the operating costs for generating electricity to be cut in comparison with large thermal power stations that have 300,000-kw power units.

As a result of erection of the nuclear-machinebuilding giant, Volgodonsk's Atommash plant, the prerequisites have been created for the accelerated construction of nuclear power stations. By the end of 1985 the growth of capacity at the country's AES's will be almost 2-fold that of the Tenth Five-Year Plan. During the next five-year plan the Kalininskaya, Zaporozhskaya, Khmel'nitskaya, Rostovskaya, Balakovskaya and other AES's will generate their first current. The construction of nuclear stations for supplying thermal energy has been called for.

Our country also has at its disposal vast reserves of water power. It has been assessed at about 3,338 billion kw-hr per year. This is almost 3-fold the electric power generated by all the country's electric-power stations in 1977; the potential water-power reserves of the European part of the country are 558 billion kw-hr per year.

The USSR's water-power resources today are being used only by 18 percent, while in the USA, at the start of 1974, 39.5 percent of the water-power resources were being used, in Canada the figure was 74 percent, in France 70 percent. The involvement of our country's vast water power in the energy balance is an important reserve for further development. At present, design developments for 275 hydroelectric-power stations with a total rated capacity of 30 million kw have been prepared.

Interest has been renewed recently in developing new technologies for the use of renewable energy resources, which can become important supplemental sources of thermal and electrical energy.

Our country has obtained positive results in the use of solar energy. However, they could have been more substantial. In the Ukrainian SSR the use of solar energy in Krymskaya Oblast alone, according to Krymenergo [Krymskaya Oblast Power-Engineering Administration], will enable about 200,000 tons of standard fuel equivalent to be saved per year. There are favorable conditions for using solar energy in Odessa, Kherson, Odesskaya, Khersonskaya and Nikolayevskaya oblasts, where there are 2,200-2,700 hours of sunny weather per year. The solar-engineering installations of the Simferopol' hotel Sportivnaya, which provide it completely with hot water (50 degrees) in the nonheating period, is an example of the effective use of solar energy. Serial production of the equipment for such solar-engineering installations, as calculations indicate, can reduce the cost thereof 4-fold to 5-fold, and, moreover, the ecological cleanness of this energy source is a positive factors in its use.

Potential wind-power reserves, which equal about 11 billion kw, exceeding the capacity of the country's electric-power stations 45-fold at the start of 1979, are not being used much in our country. At present, intensive work to create wind-power installations for various purposes is being conducted. In our republic, wind speed averages 3 meters per second. This is enough to generate electricity for an additional power reserve, especially for peak-hour loads, enabling substantial amounts of fuel to be saved.

The use of energy of the low-potential heat of the Black Sea, as well as of underground heat sources, also are of interest. Within the republic anomalous geothermal conditions have been detected in three areas in the Carpathians and in one area of the Crimea.

Thus, in the long term, the country's fuel and energy complex, including the Ukrainian SSR's complex, will be developed mainly on the basis of the use of traditional types of energy, with an outstripping growth in nuclear-power engineering, and also the use of new energy sources. The execution of energy-saving policies at all levels of economic activity will be of great importance.

At the initiative of Comrade L. I. Brezhnev, a long-term energy program for the country and the Law of the Fuel and Energy Complex of the USSR are being developed. They embody the advanced achievements of domestic and foreign science and technology and will be directed primarily at providing reliable, complete and effective satisfaction of the country's requirements through our own fuel and energy resources for many decades ahead.

But even now, effective solution of the tasks posed to workers of the fuel and energy branch by the decisions of the November 1979 CPSU Central Committee Plenum and Comrade L. I. Brezhnev's speech at the plenum will enable the supplying of the country's economy with fuel and energy resources to be improved and the reliability of the energy supply and effectiveness in the use of fuel and energy to be raised.

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BELORUSSIAN FUEL INDUSTRY IN FINAL YEAR OF PLAN

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[Article by G. A. Filippov, Belorussian SSR Minister of the Fuel Industry: "Belorussian SSR Fuel Industry in the Final Year of the 10th Five-Year Plan"]

[Text] Workers, engineers, technicians and white-collar workers of the enterprises and organizations of the Belorussian SSR Ministry of the Fuel Industry, responding with concrete deeds to the resolutions and decisions of the 25th CPSU Congress and 28th Congress of the Communist Party of Belorussia, and the November (1979) CPSU Central Committee Plenum, have initiated extensive socialist competition for ahead-of-schedule completion of the targets of the 10th Five-Year Plan and in 1979 achieved fulfillment of the plan and socialist pledges in all basic technical-economic indices. Above-target production and sales exceeded 5 million rubles. Labor productivity increased by 9.1 percent over 1978. All industrial output growth was achieved through labor productivity growth. Annual plan above-target production included 211,000 tons of briquettes. Plan targets for the first four years of the five-year plan have also been met. Above-plan industrial output of 28 million rubles was achieved for the period 1976-1979, with above-plan sales of 23.7 million rubles. Labor productivity increased by 14.4 percent during this period.

The success of this branch in the first four years of the five-year plan was achieved thanks to good, coordinated efforts on the part of the work forces of the enterprises which fulfilled the plan and socialist pledges for 1979 and the first four years of the five-year plan. They include the following enterprises and peat briquetting plants: Lyakhovichi, Belitsk, 40th Anniversary of the Belorussian SSR, May First, Kolpenitsa, Dneprovskiy, Berezino, Vitebsk, Krasnoye, Krasnaya Zvezda, imeni Ordzhonikidze, Starobin, Gatcha-Osovskiy, Ditva, Tatarka, and Chistik. A total of 150 workers of these enterprises achieved the targets of the 10th Five-Year Plan in four years. They include V. V. Rynkevich, stacker operator at the Berezino Peat Briquetting Plant; I. M. Demidov, peat combine operator of the Belitsk Peat Enterprise; S. M. Antonyuk, excavator operator at the Kobrin Peat Enterprise, V. A. Temnik, peat combine operator at the Kolpenitsa Peat Enterprise; I. M. Valenchits, peat combine operator at the Lyakhovichi Peat Briquetting Plant; M. V. Buku, cutting machine operator at the Smolevichi Peat Enterprise; S. A. Martsevich, cutting drum operator at the 40th Anniversary of the Belorussian SSR Peat Enterprise; A. F. Bovkalo, peat combine operator at the Sergeyevichi Peat Enterprise; M. A. Abramenko, peat combine operator at the Khoyniki Peat Briquetting Plant; A. S. Bykovskiy, peat combine operator at the Usyazh Peat Briquetting Plant; plus others. Hundreds of production leaders in various jobs are completing ahead of schedule the five-year-plan targets in the current year. At the majority of enterprises peat production in the 10th Five-Year Plan has become increasingly subordinated to the interests of briquette production. At the majority of briquetting plants peat has been stockpiled for briquetting, making it possible to work up to August-September, extraction of peat of the desired moisture content has been secured, and the engineering level of organization of production processes has improved.

Improvement in organization of peat production and increased enterprise readiness for the season have made it possible to achieve additional volumes of peat production for the beginning of the season. In the first half of the season in the 9th Five-Year Plan an average of 36.6 percent of annual peat production volume was achieved, while this figure was 46.5 percent on the average for the first four years of the 10th Five-Year Plan, and in 1979 peat production volume in the first half of the season averaged 57.3 percent for the ministry, and approximately 70 percent at the following enterprises: Lyakhovichi, 40th Anniversary of the Belorussian SSR, Smolevichi, Tatarka, Redkiy Rog, and other.

In the 1979 season the bulk of the peat harvesting days fell in May-June. Only enterprises in a high degree of readiness for the harvesting season were able to utilize such weather conditions in an effective manner. These enterprises had a high level of organization of production, with correct utilization of process equipment, production facilities and labor resources. Thanks to the performance of leading enterprises, the peat production target in the 1979 season was achieved by 104.7 percent for the ministry as a whole.

At the majority of enterprises the harvested peat was of high quality, which had a positive effect on briquetting plant performance. The average moisture content of peat for briquetting was 42 percent, which was 1.2 percent lower than in the 1978 season, and 46 percent for pulverized burning. An important role in meeting the peat harvesting target and improving peat quality was played by the effective system of labor remuneration and material incentive for workers and engineer-technician personnel adopted at this ministry's enterprises in 1977-1978.

High-quality and timely preparation of peat acreage forms the basis of successful peat harvesting. As was indicated by an analysis of the evaluation of the state of peat acreage producibility after the season ended, only 4.1 percent of available production area received a high mark (10 points) (1,300 hectares), 15.7 percent (5,000 hectares) had a rating of good, that is, on this acreage peat could be successfully harvested in the 1980 season following rehabilitation from the effects of hauling peat away and snow melting. On 50.6 percent of acreage (16,000 hectares), receiving a mark of satisfactory, and on 26.6 percent of acreage (9,300 hectares), receiving a low mark, it was necessary to perform considerable rehabilitation work in the fall.

The following enterprises -- imeni 23d CPSU Congress, Oshmyany, Osveya, Usvizh-Buk, Chervonoye, and imeni Dauman -- had a particularly high percentage of production acreage with poor producibility indices after the end of the season. These enterprises failed to meet their peat harvesting target.

The briquette production target for the first four years of the five-year plan was fulfilled by 104.9 percent. The Kolpenitsa, Lyakhovichi and Belitsk Peat Briquetting plants achieved the five-year briquette production target in 1979, the Berezovka Peat Enterprise in February 1980, and the Neman and Starobin plants -- in the first quarter of 1980. It is necessary to mobilize work forces to achieve the five-year plan target for briquette production for the ministry as a whole by 1 October 1980.

Seventeen peat briquetting plants have top performance indices, while the following plants have below-average performance indices: Kobrin, Lyubashkinskoye, Bol'shevik, Khoyniki, Vertelishki, Ditva, Dneprovskiy, Redkiy Rog, Gantsevichi, Slutsk, and 16 Krasnykh Partizan.

A number of plants (Osveya, Osintorf, Usvizh-Buk, Lukskiy, Oshmyany, imeni 23d CPSU Congress, and Turshovka) failed to meet their 1979 briquette production targets.

Analysis of the performance of these enterprises indicates that failure to meet the production target is a consequence of extremely unsatisfactory organization of production, as a result of which unproductive work time losses occur and basic production equipment is utilized unsatisfactorily (driers and presses). In 1979, for example, above-plan work stoppages comprised 31.7 percent of the total number of briquetting plant work stoppages, that is, these plants account for one third of all unproductive work time losses. These same plants unsatisfactorily utilize basic equipment. We know that the productivity of briquetting shops is determined primarily by the productivity of the drying units. In 1979 productivity of driers at the Usvizh-Buk and Lukskiy Peat Briquetting plants was 7.7 and 4.5 t/h respectively in evaporated moisture, as compared with 9.9 t/h achieved at the Usyazh Peat Briquetting Plant, which has an identical process layout; drier productivity in evaporated moisture per hour of net operation at the Kobrin Peat Enterprise was 1.17 t/h, in comparison with 1.7 t/h at the Belitsk and Redkiy Rog enterprises.

Work time losses were high at the Bol'shevik, Turshovka, Lyubashkinskoye, and Glinka plants.

Press equipment is unsatisfactorily utilized at a number of plants. For example, output per stamp per hour of net operation at plants equipped with B-8232 and Buckau-Wolf 2 x 7" presses was 1.98 t/h at the Usyazh Peat Briquetting Plant, and 1.93 t/h at the Lyakhovichi Plant. At the same time output per stamp at the Lukskiy Peat Briquetting Plant was 1.38 t/h, 1.07 t/h at the Plant imeni 23d CPSU Congress, 1.29 t/h at the Oshmyany Plant, 0.73 t/h at Turshovka, and 0.7 t/h at Osveya.

Maximum output per stamp per hour of net operation for type BPD-2 presses was achieved at the Redkiy Rog Peat Enterprise (1.83 t/h).

The labor forces at peat enterprises and briquetting plants are making certain efforts to achieve timely and high-quality preparation of harvested acreage and turnback to the previous land users. Enterprises have returned to the republic's economy 5,985 hectares of harvested-out and unutilized acreage, of which reclamation was performed on 4,661 hectares. The state plan target for reclamation of harvested-out acreage in 1979 was fulfilled by 101.3 percent. In the first four years of the 10th Five-Year Plan 15,700 hectares of harvested-out and unutilized acreage were returned to the republic's economy, while 13,900 hectares were reclaimed.

During the years of the 10th Five-Year Plan seven industrial processes and 550 units of new machinery and equipment were adopted in this branch, including seven industrial processes and 360 new pieces of machinery based on designs produced at BelNIItopproyekt [expansion unknown]. Total mechanization of basic production processes was completed, and heavy manual labor was eliminated in the rehabilitation and maintenance of peat harvesting fields. Measures to boost the technical level of production have freed 1,630 persons for other jobs, including 852 in 1979. Labor productivity has increased 10 percent, and 6.4 percent in 1979.

A comprehensive product quality control system (KS UKP) was elaborated and adopted in this branch in 1976-1979.

However, the effectiveness of BelNIItopproyekt scientific research activities is insufficient. Actual savings per ruble of expenditures (according to enterprise data) totaled 1.33 rubles in 1978. In 1980 the institute and enterprises have been assigned tasks of elaboration of basic areas and programs of scientific and technological advance. It is essential to ensure fulfillment of targets pertaining to reducing manual labor in this branch, to elaborate and adopt an OS UKP (branch product quality control system).

Adoption of NOT [Scientific Organization of Labor] plan measures for 1979 made it possible to reduce production labor requirements by 210,000 man-hours. Savings obtained from adoption of NOT measures totaled 121,700 rubles. Relative work force reduction from adoption of NOT measures totaled 115 jobs. A total of 410 output and servicing standards were revised in 1979 on the basis of elaborated organizational-technical measures. The percentage share of technically substantiated norms comprised 96.7 percent.

In 1979 oblast executive committee fuel divisions and fuel supplying organizations continued improving the system of fuel supply to the general public and municipal enterprises and establishments. Fuel requirements and allocation limits for municipal-service enterprises and establishments were refined. Record keeping of fuel allocated to consumers was set up. Sale and delivery of fuel to the general public on the basis of advance orders was organized in some city (rayon) fuel marketing organizations in this republic.

Consumers were sold 2,329,000 tons of standard fuel, with a targeted 2,129,000 tons (109.4 percent), or 87,700 tons more than in 1978.

The increase in sale of fuel was achieved primarily by improving the performance of briquetting plants and increasing briquette production. In 1979 briquette sales exceeded 1978 figures by 247,800 tons.

Volume of services rendered to the general public in the area of fuel delivery and cordwood cutting increased. Last year city (rayon) fuel marketing organizations rendered services totaling 1,059,000 rubles, or 119 percent of target. Services to the general population in rural localities totaled 463,000 rubles. In addition, transport agencies delivered 422,000 tons of fuel to the general public.

In the 10th Five-Year Plan this ministry's enterprises and contruction organizations accomplished a certain amount of work in the area of maintaining achieved production capabilities by renovating existing and building new peat branch enterprises.

In the first four years of the 10th Five-Year Plan the target was met for putting into operation briquette and peat production facilities, as well as total housing and preschool facilities. A total of 10 peat briquetting plants and enterprises with a total annual production capacity of 516,000 tons of briquettes were built and renovated. Peat harvesting capability of 962,000 tons was put on-stream, with completion of 63,149 m^2 of housing, plus other facilities.

The work forces of the Berezovskoye, Lyubashkinskoye, Bol'shevik, Khoyniki, Krasnoye, Smolevichi, and Usvizh-Buk enterprises successfully accomplished their construction targets.

At the same time a number of construction projects and enterprises failed to meet targets pertaining to bringing facilities on-stream, the capital spending and construction work volume targets.

In execution of the CPSU Central Committee and USSR Council of Ministers decree entitled "On Improving Planning and Increasing the Effect of the Economic Mechanism on Boosting Production Efficiency and Work Quality," this ministry is carrying out measures in the area of optimization of planning, management and economic incentive. Communication to subordinate enterprises of plan targets pertaining to return on capital, reduction of production labor requirements, and improvement in level of job mechanization has been adopted into planning practice. A statute and uniform forms of intra-plant cost accountability of shops and sections have been elaborated and adopted at enterprises. Wages in fuel supplying organizations have been put in order. Industrial enterprise passports are being elaborated, as is a specific-purpose comprehensive program for mechanization of manual labor in this branch for the period 1981-1985. The brigade form of organization of labor and worker wages is being adopted.

Competing to honor in a worthy manner the 110th anniversary of V. I. Lenin's birth, the work forces of this ministry's enterprises and organizations achieved the briquette production target ahead of schedule for the first quarter in 1980, by 18 March, produced 90,000 tons above target, and completed the sales target by 24 March. Above-target production totaled 1,645,000 rubles, with 2 million rubles sales above target. In comparison with the first quarter of 1979, sales volume increased by 11.7 percent, industrial output volume by 11 percent, and briquette production by 10.6 percent. The labor productivity growth rate was 112 percent.

A large part of the year, however, still lies ahead. Also ahead is the most important work performed by this branch -- peat harvesting. Therefore a primary task of the work forces of all the enterprises of this ministry is to meet the plan target for volume of high-quality peat harvested and provision of sufficient peat supplies for uninterrupted briquetting plant operations up to August 1981. In order to accomplish this most important task it is essential from the very first days of settled weather fully to utilize available peat harvesting capabilities and to examine in a comprehensive manner all matters pertaining to readying peat harvesting sections for the season -- training of equipment operators and readying of production acreage, equipment and field production bases; supply of fuel, lubricants and spare parts; organization of meals for the workers and delivery of equipment operators to the work section; preparation of technical documentation; performance of fire-prevention measures and measures to improve working conditions and safety; organization of scheduled preventive maintenance on production equipment, production acreage, and structures; efficient utilization of workers on days when peat is not being harvested; record keeping and quality control on the harvested peat; wages; organization of socialist competition; preparation of visual propaganda and agitation; extensive publicity for competition results.

As was indicated by the work experience in 1978-1979 and previous seasons, in preparing for the peat harvesting season special attention must be focused on organization of peat harvesting during days of stable dry weather, with special preparation for work during these periods, and training of the required additional number of equipment operators, who will be pulled in from other jobs to harvest peat, and readying equipment and harvesting acreage under night conditions.

Special attention should be focused on the condition of the swathers, which determine to a significant degree the coefficient of harvest, cyclic harvests, and the quality of the harvested peat.

In the final year of the 10th Five-Year Plan the enterprises of the Belorussian SSR Ministry of the Fuel Industry should produce approximately 2.5 million tons of briquettes. This quantity of briquettes is extremely essential in order to provide the general public and municipal enterprises with adequate fuel.

The performance of this ministry's enterprises in the latter half of 1979 and in the first quarter of 1980 indicates that peat briquetting plants are capable of accomplishing this task. The quantity and quality of available peat permit not only increasing briquette production in the first half of the year but also enable us to achieve considerable savings in fuel-energy resources and funds.

In order to ensure production of the required volumes of briquettes in 1980, it is essential:

to perform major overhauls according to the scheduled timetables, since plant shutdown for just one day prevents the production of 7,500 tons of briquettes;

to reduce above-target briquette shop down time due to equipment breakdown. A decrease of 10 percent in briquette shop down time is equivalent to the additional production of 31,000 tons of briquettes;

to begin in a prompt manner and to move swiftly ahead in the peat-harvesting season, especially at plants where stockpiles of briquetting raw materials will not last up to 1 July.

In the final year of the five-year plan it is necessary to ensure that all plants of this ministry meet their briquette production target. Enterprise executives, ministry administration and division officials should analyze in detail the performance of lagging enterprises, should make on-the-spot inspections, and should specify and carry out concrete measures to improve their economic-financial activities.

In the area of capital construction, in 1980 construction is to be completed on the Zhitkovichi Peat Briquetting Plant, renovation of the Turshovka Peat Briquetting Plant is to be completed, with a large volume of construction work to be performed on the Torbolovo Peat Briquetting Plant at the Kolpenitsa Enterprise. A total of 2,000 hectares of new peat harvesting acreage are also to be brought into production, with completion of 12,910 m^2 of housing, two clubhouses accommodating 700 persons, plus a number of other facilities.

This is possible with vigorous, purposeful work on the part of the Beltoplivostroy Trust and its structural subdivisions, as well as client enterprises in organization of construction of facilities and supply of complete design-estimate documentation and equipment.

At all enterprises and organizations it is necessary to carry out an aggregate of measures to strengthen labor and production discipline, to wage a resolute campaign against poor production management, to increase the economic knowledge of personnel, supervisory and executive personnel in particular and, finally, to increase the responsibility of each individual for the assigned task.

Concrete, positive results, a realistic achievement, constitute not only the highest result of organizational and indoctrinational activity but also a powerful factor in indoctrination proper.

Therefore organizational work, economic indoctrination, and further growth of professional expertise, from worker to chief executive officer, should be organized in such a manner that they are fully in conformity with the demands of the November (1979) CPSU Central Committee Plenum and the 20th Plenum of the Central Committee of the Communist Party of Belorussia.

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TASKAYEV: PLAN FULFILLMENT AT KRASNOYARSKUGOL'

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 6, Jun 80 pp 39-44

[Article by V. Taskayev, General Director of the Krasnoyarskugol' Association: "Control Over Plan Fulfillment Within a Production Association"]

[Text] Of tremendous significance for our national economy is the wide scale development of work involving the open-pit extraction of coal in our eastern regions plus acceleration of the creation of the Kansk-Achinsk Fuel-Power Complex on the base of cheap brown coal. This considerable contribution to the expansion of the fuel-power base of Siberia will be made by the workers of the Krasnoyarskugol' Production Association. Comprising the association are 24 production units, including mines and open-pit mines, repair enterprises, loading-transport administrations, motor transport, construction, housing-communal services and other organizations. The association's over-all number of workers is about 18,000.

The extraction of coal is the basic productive activity of the association, with over 80 percent of the work being done at the Kansk-Achinsk coal basin. Over 75 percent of the extracted coal is delivered to enterprises of the USSR Ministry of Power, with almost 25 percent of it going to other ministries and governmental departments and for communal-everyday needs.

The association constantly intensifies the extraction of coal through the reconstruction and the technical re-equipment of enterprises and through the conduct of organizational-technical measures. Over the past decade, even with the removal from operation of two mine shafts with a capacity of over 1 million tons, there has been a 76 percent increase in the extraction of coal. The over-all increase in our annual coal extraction over the four years of the current five year plan has reached approximately 5 million tons. During this period, mines and open-pit mines have brought up to the surface 152.4 million tons, or 37 million tons more than in the preceeding five-year plan. The planned assignment of the four years of this five year plan has been over-fulfilled by 1,570,000 tons. Five million rubles in above-plan production has also been realized.

The past decade has also seen the fundamental renewal of the equipment inventory of mines, open-pit mines and transport administrations. Highly-productive mechanized complexes have been introduced, as have new mine cutting combines, conveyers, and other machinery. Practically all of the excavators in our open-pit coal mines have been replaced with new equipment. In the open pits of the Kansk-Achinsk Basin, successful use is being made of ER-1250 rotary excavators. Back in 1979, with the aid of this rotary equipment, more than one-half of the entire volume of coal extracted at those open-pit mines was dug out. At the present time, ERShRD-5000 rotary complexes with a productive capacity of 5,000 tons of coal per hour are being introduced and mastered at the Irsha-Borodinskiy open-pit mine. Now operating at the Nazarovskiy open-pit mine is the first giant walking excavator on the Eurasian continent--the ESh-100/100. Its yearly productive capacity is more than 12 million cubic meters of coal. Widely introduced throughout the association are powerful machines for the drilling of both vertical and inclined shaft wells, dumptrucks with a carrying capacity of up to 180 tons, and other up-to-date equipment.

Technical re-equipment, the placement into operation of unique machinery with large individual capacities in open-pit mining conditions, the complex organization of production and the presence of unforeseen factors which have a negative effect upon the technological process of stripping, extracting and sending coal to consumers--all these require persistent improvement in planning plus control over the progress of fulfillment of the plan as to basic technical-economic indicators.

A great deal of attention is devoted, within the association, to the problems of increasing the scientific substantiation of plans and the improvement of plan work methods. Developed in 1978 and now functioning is a system of resource-shaping indicators for the formation of funds used for stimulation or encouragement. Serving as the basis for this system is the practice, confirmed over a number of years, of including in our calculations the effective rate per ton of coal extracted (the sum total of coal, shale and concentrate brought up out of the ground). Additional extraction and the fulfillment of socialist obligations are encouraged by an increase in rates. Labor productivity and production realization indicators, together with consideration of delivery of the assigned product nomenclature, are used as fund correctors. This system of fund formation, as developed and applied, is responsive to the peculiarities of our industry and stimulates more fully the development of coal extraction.

A great deal of work is being conducted in regard to the improvement of lower-level planning, to the on-schedule compilation and delivery to those who will be carrying it out of plans for the forthcoming year, quarter or month. Basic plan technical-economic indicators for the forthcoming year for all divisions of the technical, industrial and finance plan, together with the necessary measures for their fulfillment, are brought to the attention of enterprises through an association order prior to the beginning of the plan year. Mines, open-pit mines, motor vehicle bases and other enterprises then work out their plans for the year, with a quarterly breakdown by sector, shop, service, excavator and locomotive brigade; the specific executors are then notified of their assignments.

Special thoroughness goes into the working out of production plans for the forthcoming month. The planning of mining operations at mines and open-pit mines begins 8 to 10 days prior to their inception. Proceeding from an analysis of economic activity for the current month, the status of mining operations, plus production conditions, plan tasks are then designated for every brigade and specific work position. Determined also are the volumes and schedules for wrapping up all necessary auxiliary operations for the repair, mine trackage, explosives, power mechanics and other sectors and shops together with the determination of all corresponding organizational-technical measures.

Sector and shop plans, together with consideration of labor and material resources, are approved by the leadership and are brought to the attention of the sectors, shops and brigades which will be carrying them out no later than 2-3 days prior to the beginning of the month. All plan production volumes are coordinated with loading-transport administrations and with the motor transport bases which serve them.

With the aim of increasing the effectiveness of utilization of auxiliary workers, who are paid on a periodic basis, and proceeding out of consideration of forthcoming work volumes in the plan period, the chiefs of sectors and shops plus their mechanics establish norm assignments for the normative work volume. Upon fulfillment of their assignments and the lowering of man-hours, workers receive an additional bonus from the material stimulation fund.

Thoroughness in the working out of plans and assignments allows us to control their fulfillment more effectively.

Within the association over the past three years measures have been carried out for the creation of a reliable system for telephone and teletype communication with all enterprises. Under the association in 1977 was formed a communications production-technological administration with all of the rights of a production unit and with large interconnected and self-supporting sectors organized on a territorial basis, this to replace small and separate communication units and sectors. Such a specialization has provided us with the possibility of concentrating material and labor resources and of resolving in a more operational fashion questions involving the construction, repair and current operation of communication facilities.

This improvement in operational communications facilitated the placing in order of precise control over the course of production at enterprises. Belonging to the operational control service are shift engineers for operational work and information center workers, as well as chief miners and technologists who are members of the directorate for production and the technical directorate but who are attached to individual enterprises or group of enterprises. Under conditions of uninterrupted production there has been organized a round-the-clock and uninterrupted supervision by shift engineers and, on Saturdays and Sundays, by responsible workers and directors of various types of activity under the association.

Among the tasks of the operational-dispatcher's service is that of the uninterrupted collection of operational information on all of the technological processes of the coal-extraction enterprises, plus that of the adoption of necessary measures in extreme situations. This service also controls the work of other outfits which serve our basic production effort: the loading-transport administrations, motor vehicle bases, power services and the like. Controlled with particular precision is fulfillment of the plan for the transmission of railroad cars belonging to the Railways Ministry and which are in the local area being loaded, the time spent in loading them and in dispatching those loaded cars to lines leading to railroad stations and to electric power stations of the Power Ministry. An hourly report on the dispatching of coal trains over various routes has been introduced. The transmission of railroad cars being unloaded and the handing over of empty cars is also organized.

A special journal is kept on a day-by-day basis; in it are indicated the amounts of coal left over at warehouses of coal enterprises both as of that date and from the beginning of the month, the fulfillment of the plan for loading and unloading railroad cars, the amount of coal shipped out, the expenditure and remnants of Kansk-Achinsk coal at electric power station warehouses within the Krasnoyarskenergo Association and at warehouses of other large consumers of coal. A report on the status of fulfillment of the plan for the loading and use of railroad cars is transmitted by teletype to the information-dispatcher center of the USSR Ministry of the Coal Industry.

Every day, the shift engineer records in a special journal the results, by shifts, of an operational recording and control over the work of basic mining-mine shaft equipment at open-pit mines, sets down data of the fulfillment of orders by shifts for every excavator, of orders for coal extraction, mine stripping, terracing and other operations, together with an indication of forced inactivity and the specific reasons for it. Taken into consideration at mine shafts is the work of clearing away and preparing mine faces; at concentration factories, what is taken into consideration is the sorting, processing and the release of concentrates, the sorting of coal, plus the duration of time during which the concentration factory is in operation. Auxiliary outfits are subject to special control--the loading-transport administrations, motor vehicle bases, all of whom participate directly in the technological process. Controlled also is the departure of locomotives used in hauling coal and in stripping operations plus their fulfillment of plan assignments. Every month, a look is taken at the indicators on the operation of technological motor vehicles and bulldozers. Along with this every month there is supervision over the fulfillment of orders and assignments for the more important preparatory operations (the preparation of a road bed for railroad tracks, the relaying and laying of new railroad trackage on strip-mining and coal extraction levels, the repair of equipment, plus other "bottlenecks" in the technological process).

Final results of work for the day are drawn up at the information center in the form of a report, in which is reflected fulfillment of the plan for the extraction of coal over the 24 hours just past, from the beginning of the month, and from the beginning of the year for all enterprises, for the processing and release of concentrates and sorted coal, for all forms of stripping operations, as well as for the fulfillment of plans by ESh-100/100, ERShRD-5000, and EKG-12.5 excavators. In addition to this, the finance department makes a daily recording of the fulfillment of the plan for the sale of products.

Every ten days, the people at the information center take into consideration fulfillment of the plan for release of basic nomenclature production (13 items), for the supplying of equipment to and the utilization of time by underground workers at mine shafts and at extraction and stripping operations in the open-pit mines.

At the beginning of every month, the association holds a meeting of the members of its apparatus at which the results for the previous month are summed up, at which shortcomings are uncovered and measures designated for their elimination. Once or twice during a quarter there is a meeting of the association council or soviet, to which are invited the directors of enterprises, party and trade-union organizations. The council hears reports from the directors and defines methods for improving the work of enterprises.

At their quarterly joint meetings, the administrative board of the association and the territorial trade union committee sum up the results of the socialist competition between enterprises, production units, sectors and brigades and awards transferable Red Banners, certificates of honor and cash prizes to the winners. Leading production workers--winners of a socialist competition twice in one year--are awarded certificates of honor and are presented with mementoes by the association and city trade union committee, this based on the results of their work for the year and in honor of the Miner's Day professional holiday.

A great deal of attention is devoted to the dissemination of leading experience. At the association's open-pit mines, loading-transport administrations, and motor vehicle bases at the present time there are 66 excavator and transport brigades which are operating at increased work norms. Results of their competition are summed up every month.

Competition for the achievement of high indicators, for work in which no worker lags behind has helped many work collectives to reach prize spots in our all-union socialist competition. Over the four years of the present five year plan association collectives have won 70 prize spots. The over-all amount of cash prizes awarded to competition winners came to R715,000.

Leader in this socialist competition for a number of years has been the collective of the Order of Labor Red Banner Nazarovskiy open-pit mine.

As a result of their work in 1978 and 1979, the collective has been awarded the transferable Red Banner of the CPSU Central Committee, the USSR Council of Ministers, the AUCCTU, and the Central Committee of the Coal Industry Workers Union. The Berezovskiy open-pit mine collective in 1979 won a prize spot four times in our all-union socialist competition, including the transferable Red Banner of our ministry and of the trade-union central committee.

Not all of our enterprises, however, fulfill established plan assignments. Among them in 1979 were the Izykhskiy and the Irsha-Borodinskiy open-pit mines. At individual enterprises, with the exception of the Yeniseyskaya mines and the apparatus of the association itself, automatic systems for the management of production have not been created, the need for which is dictated by the course of scientific-technical development and the tasks rising out of demands to increase the effectiveness of production and the qulaity of the work of links in our national economy.

From year to year there can be observed an obvious disproportion between the plan for the extraction of brown coal and possibilities for its sale. The USSR Ministry of Railways is not facilitating the transport of coal to consumers in conformity with confirmed plans, particularly in the spring-summer period. It is because of this reason that quarterly and yearly plans for the extraction of coal have had to be corrected.

The repeated appeals which the association has made, this in the course of its plan formation, to the USSR Ministry of the Coal Industry, to Gossnab USSR, and the Gosplan USSR on the inconsistency between the plan for extraction and the declared requirement of our main customer--the USSR Ministry of Power--and of the ministry's Main Administration for Exploitation of Power systems of the East have not been heeded. As a result, over the four years of the present five year plan our plans for the extraction of coal have been changed 13 times in the course of a year, with a decrease of 4.7 million tons in the plan as it was first approved.

This lack of plan stability has had an extremely negative effect upon the work of the association's collectives, particularly the work of our largest Irsha-Borodinskiy open-pit mine.

In order to create normal conditions for the work of our open-pit coal mines and to satisfy to the maximum the requirements of our consumers on the basis of an analysis of the dynamics of the requirement for the coal of the Kansk-Achinsk Basin over previous years, together with consideration of the increase in the thermal and power loads of our basic consumers as well as of possible additional requirements connected with climatic conditions and other facts, the association proposed the establishement of a higher assignment for 1980. This proposal was adopted. In 1980, the above-plan extraction of Kansk-Achinsk coal will be 900,000 tons.

In the process of the technical re-equipment of open-pit mines and the placing of powerful excavators into operation there was uncovered a disproportion in the supplying of auxiliary road-transport equipment, bulldozers and motor vehicles for housekeeping operations and for the transport of workers and for other means of small mechanization. Our inventory of motor vehicle, tractor-bulldozer, and railroad rolling stock equipment is in a very worn out state. Requirements for spare parts for the repair of this equipment is only being satisfied by 30 percent.

Practice has demonstrated that, for the effective operation of unique machinery with a large individual capacity, excavators of the ESh-100/100 and ERShRD-5000 type require maintenance provided by their plant-manufacturers. Just one day alone of non-productive idleness of an ESh-100/100 excavator causes a loss on the scale of about 10,000 rubles, while one day's idleness of an ERShRD-5000 excavator causes a loss of about 5,000 rubles. A large proportion of this idle time is connected with the lack of spare parts. It is quite evident that allocation of the corresponding funds for the provision of spare parts would facilitate elimination of such a loss.

Plan quality and stability depends to a considerable degree on the existence of a reserve of productive capacity at these brown coal open-pit mines. Seasonal fluctuation, the fact that work at these mines depends on climatic conditions, on the availability of water and on the work loads of thermal electric power stations, and the irregularity in the supply of railroad cars to where the mining is going on--all this requires the creation of a reliable reserve for a rapid increase in the volume of extraction and for satisfying unexpected increased requirements for brown coal. Unfortunately, the association does not possess such a reserve yet plan assignments set for the association include excessive productive capabilities.

The 12 July 1979 decree of the CPSU Central Committee and the USSR Council of Ministers on the improvement of planning provide measures for accelerating the commissioning of productive capacity and installations and for increasing the effectiveness of capital investment. Of special significance for the association are the instructions in that decree on the necessity for the confirmation of a stable five-year plan for capital construction, this balanced with resources of material, technological and power equipment, with labor and financial resources, as well as with the capacities of construction-installation organizations (plus the designation of areas in which this construction is to be concentrated). On the precise and timely fulfillment of this program for construction and for placement into operation of additional open-pit coal mine capacity will depend the timely satisfaction of the increasing requirements of the national economy for the power-producing coal of the Kansk-Achinsk Coal Basin.

Formation of the association, as experience demonstrates, testifies to the higher level of organization of socialist production. The specialization and concentration of production, the strengthening of mutual ties and the precise delineation of rights and obligations between links, operability in the work of the administrative apparatus will allow us to resolve effectively many questions connected with planning, with the long-range development of enterprises, with the acceleration of scientific-technical progress, with the best possible arrangement and utilization of specilaists and, in the long run, with satisfying the requirements of our nation for the production of our branch of industry--that of fuel.

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FUELS

CONSTRUCTION OF NORTHERN GAS PIPELINE PROGRESSES

Moscow IZVESTIYA in Russian 9 Jul 80 p 1

[Article by B. L'vov (Urengoy-Moscow): "The Lines Goes to the West"]

> [Text] The first 1,000 km of the transcontinental gas-transporting system that connects the Siberian subarctic with the USSR's western state border has been laid. The Urals, the central regions of the European part of the country and industrial enterprises of western oblasts will receive additional heat, light and energy.

The labor drive of Lenin's anniversary year will bring truly record results. In about half a year, 3 months of which included the difficult winter season, construction and installing subdivisions of Minneftegazstroy [Ministry of Construction of Petroleum and Gas Industry Enterprises] laid almost a fourth of a new large fuel-and-energy system. The highest labor productivity was achieved for northern latitudes. A substantial part of the pipeline has been blown through and tested at a high pressure. The prerequisites for sending gas westward through it have been created.

The Urengoy-Nadym, Punga-Ukhta-Gryazovets-Moscow Gas District Ring and Gryazovets-Torzhok-Minsk-Ivatsevichi trunk gas pipeline systems have been extended by more than 4,400 km. Simultaneously with the gigantic underground arterials, 30 compressor stations, electric-power lines and substations, roads, helicopter pads and housing settlements with a complete set of facilities for public health, cultural and domestic services, shopping, public eating and communications are being erected.

"The builders are operating on a line that they are already familiar with, in some degree," says chief of the central current operations section of Minneftegazstroy G. Chesnokov. "Another extremely large multiple-point gas-transporting system, about 12,000 km long, had been laid, almost in parallel, from Urengoy to the USSR border. But the difficulties have not thereby been reduced: the climate has not eased, the local terrain has not become better. And it has not become simpler to cross the rivers, marshes and mountain passes of the Arctic Urals or to pierce the taiga."

The new gas-transporting system is being formed almost as a whole from large-diameter pipe. The compressor stations will be more powerful and more improved, and control-system automation will be at a higher level.

The whole complicated set of engineering structures is to be ready for startup by 1982. And the linear part of the complex by next year. During the concluding year of the five-year plan operations will be going on full blast on the 457-km Gryazovets-Moscow Gas District Ring section. This section should go into operation at the start of 1981.

A gas pipeline has been extended for several hundred kilometers around Moscow, distant suburbs of it having been embraced by the steel hoop. This fuel and power belt connects the pipelines that feed gas from Stavropol', Central Asia, the north of Tyumenskaya Oblast, the Ukraine and the Volga region into a single system. Along with the compressor and distribution stations, the circumferential gas ring serves as a reliable regulator of fuel and power streams in the country's central industrial region.

Collectives of Ryazan'truboprovodstroy [Ryazanskaya Oblast Pipeline Construction Trust], Voronezhtruboprovodstroy [Voronezhskaya Oblast Pipeline Construction Trust], Mosgazprovodstroy [Moscow Oblast Gas Pipeline Construction Trust] and welding and assembly and other trusts are working successfully on the sections of the route to the Moscow environs that are due for startup. Good news is coming also from other sections of the transcontinental arterial.

The socialist competition of the collectives of Glavsibtruboprovodstroy [Main Administration for Siberian Pipeline Construction], Glavtyumenneftegazstroy [Main Administration for the Construction of Oil and Gas Pipelines in Tyumenskaya Oblast], Glavkomigazneftestroy [Main Administration for the Construction of Oil and Gas Industry Facilities in the Komi ASSR] and other subunits of the industry, which is helping them to achieve new successes in solving most important fuel and energy problems, is being promoted throughout the whole route. "The workers' relay" has become a support for the shock-work drive that is dedicated to the forthcoming 26th CPSU Congress.

The underwater construction workers who will erect crossings under the Nadym, Long-Yugan, Pechora, Vychegda and other rivers, have taken up "starting positions." Work on laying the high-voltage electrical transmission lines and structures for facilities for electrochemical protection of the trunk line is speeding up. The collectives of advanced industrial-type flow-line groups, in striving to carry out with honor the party and government decree about accelerating development of West Siberia's oil and gas region, are turning out 2-3 km of finished arterial per day, to greet the 26th CPSU Congress worthily.

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PLANTS DISCUSS SUPPORT TO TYUMEN'

Baku VYSHKA in Russian 19 Jul 80 p 2

[Article by L. Rozenblat and V. Adilov: "Orders for Tyumen' -- Ahead of Schedule!"]

> [Text] In 1958 the machine builders of the Bakinskiy Rabochiy Plant, realizing the importance of promptly delivering to the oil workers of Siberia equipment for production of crude oil and natural gas, authored a valuable initiative: "Orders to Tyumen' -- ahead of schedule and with high quality." This initiative was supported by the work forces of all enterprises of the Soyuzneftemash Association. This article relates how this important initiative is being implemented today.

On Schedule and With High Quality -- L. Rozenblat, Chief of Production Division, Soyuzneftemash All-Union Production Association

Ever since the machine builders began working under the slogan "Orders for Tyumen' -- ahead of schedule and with high quality," considerable work has been accomplished in the association and at the enterprises, work aimed at ensuring implementation of this important initiative. First of all the state of affairs regarding delivery of equipment to this country's oil and gas producing regions was thoroughly analyzed. This analysis indicated the following: in order successfully to accomplish the task, it is essential to bring proper order to the business of handling and processing incoming work orders and the confusion occurring in delivery of equipment, to draw up and submit requests for freight cars in a prompt and quality manner, and to establish businesslike contacts with the customers receiving the equipment. The matter of equipment deliveries to the regions of Tyumen', Siberia and the Far North was brought up for discussion by the association directors council. Concrete measures were elaborated, aimed at plan fulfillment and sharp improvement in product quality. As a result of adopted measures, in 1978 almost all Soyuzneftemash enterprises accomplished the year's equipment deliveries target.

Beginning in 1979 the association's marketing administration proceeded to monitor on a daily basis shipments of equipment to the Northern regions. These figures would be analyzed daily by the appropriate divisions and administration executive officials. Every 10 days the directors' council would discuss these matters at its meetings. In 1979 all association enterprises achieved their targets pertaining to equipment shipments to Tyumen', in full volume and across the product list.

We are continuing to improve methods of keeping records on and monitoring equipment shipments in 1980. The people at Soyuzneftemash's electronic data processing center are also working on this important matter. Record keeping and monitoring of shipments in 1980 are being handled by electronic computers, and the quality of the received information has improved significantly.

End results of these efforts are also in evidence. There has been a substantial increase in shipments of equipment to oil and gas production enterprises in Tyumen', Siberia, and the Far North. For example, in 1979 the Plant imeni Lieutenant Shmidt delivered 1206 sets of wellhead equipment, while the figure is already 1121 sets for the first six months of this year. In 1979 57 Bakinets-3M well repair units were delivered, while 81 units were delivered in the first six months of this year. The Plant imeni B. Sardarov shipped last year 38 2-PARS units for well completion and treatment, and 35 units in the first six months of this year. In 1979 the Bakinskiy Rabochiy Plant shipped 418 beam pumping units to the North, while the figure was 370 for the first six months of this year.

Delivery shortfalls occurred only in two items -- the Plant imeni Lieutenant Shmidt owed Komineft' and Tomskneft' oil workers 120 wellhead valves, and Glavtyumen'geologiya -- two ShV-15 swivels. As a whole, however, the target for equipment deliveries to oil workers in the North was met by 118 percent for the first half of the year.

We should like to discuss a valuable initiative which developed as a result of businesslike cooperation between the Plant imeni Kasimov and the Glavtyumenneftegaz Association. This association was allocated for the first quarter in 1980 39 pipe section carriers on an Ural-375 chassis. In order to economize in freight car utilization, the supplier and customer reached an agreement stipulating that the chassis, built by the automotive plant in the city of Mias, would not be shipped to Baku but would be sent directly to Tyumen'. The plant built a trailer for the pipe carriers, underframes, and shipped them to Tyumen', where a plant fitter team assembled them. Thus businesslike cooperation and an innovative approach to things made it possible to eliminate in the first quarter the use of 39 freight cars for hauling pipe carriers, and 33 freight cars will be freed in like manner in the third quarter of this year.

Responding with enormous enthusiasm to the decision of the CPSU Central Committee June Plenum announcing the next CPSU Congress, the workers of the Soyuzneftemash All-Union Production Association are filled with resolve successfully to complete this year as well shipments to the areas of Tyumen', Siberia and the Far North of high-quality oilfield, drilling and geological exploration equipment, in full amount and variety.

Plus Engineer Support -- V. Adilov, Director, Machine Building Plant imeni Yu. Kasimov

The oil workers, gas workers and geologists of Tyumen' and the Far North are well acquainted with products manufactured by our plants. Highly-efficient oilfield equipment, UN1T and UN1 pump installations and OV-93 pipe carriers, equal to the best foreign and Soviet-built equipment, are supplied to Glavtyumenneftegaz, Glavtyumengeologiya, Komineft, Komigazprom, the Ukhta and Arkhangel'sk geological administrations. More than one third of the equipment shipped out from our plant bears the coveted pentagon stamp.

Aware of the acute need of the Siberian oil workers for prompt supply of modern equipment, this plant's work force, supporting the machine builders of the Bakinskiy Rabochiy Plant, which came out with the "Orders for Tyumen' Ahead of Schedule" initiative, has extensively engaged in socialist competition since the beginning of 1979 to achieve ahead-of-schedule shipment of oilfield equipment to the oil workers of Western Siberia and the Far North. Competition under this slogan was organized between shops, sections, brigades and individual workers. Communists, production innovators and leaders stride in the vanguard of competition, inspiring the work force by personal example to meet their tough pledges. The first worker at the plant to support the "Orders for Tyumen' Ahead of Schedule" initiative was Anatoliy Rodnyy, lathe and boring machine operator and member of the plant party bureau. He is continuing to achieve his work-shift targets by 120-130 percent, and every part he machines passes inspection.

It was decided to give engineer support to worker initiative. Plant management, engineer services and the party organization adopted a number of measures aimed at maximum utilization of internal reserves and all-out improvement in work efficiency and quality.

Efforts were made to establish a 20-day stockpile of parts. In order to speed up performance of contractual obligations, brigades were set up in the shops, specialized by product types and grades. Rearrangement and readjustment of equipment was performed in Machinery Assembly Shop No 2, which made it possible to increase production by 50 percent and to accommodate in the same space a section for the manufacture of pumping plants supplied to the oil workers of Western Siberia.

Simultaneously with improvement of structure of production, advanced technology and means of mechanization were adopted. Measures were also taken to boost the equipment operation shift factor.

All this made it possible to increase output without an increase in production space. In 1979 above-target production totaled 1,374,000 rubles, and the work force substantially exceeded its socialist pledges and counterplan.

This made it possible successfully to perform contractual obligations. The year's target for delivery of oilfield equipment to the oil workers of Western Siberia and the Far North was completed ahead of schedule in November 1979. A total of 8.6 million rubles worth of product was shipped to them, comprising 30 percent of total output volume.

The plant's labor force is continuing to work this year at an undiminished pace. We are targeted to produce 3.5 million rubles more output than last year, with increased shipment of product to the oil workers of Western Siberia and the Far North. And we are doing everything to carry out the assigned tasks with honor. Standing shock-worker watch to achieve ahead-of-schedule completion of orders placed by the Siberian oil workers, this plant's machine builders are overfulfilling their production targets each day and are turning out product exclusively of excellent quality. The assembler brigades of Tofik Shakhveletov and Tsolak Vartanov are today among the finest. The products turned out by them are being shipped off ahead of schedule to the oil workers of Siberia. In the first half of the year the product output and sales target was met by 103.5 percent. Above-target production and sales amount to more than 500,000 rubles. Basic and additional socialist pledges adopted by the work force for this year in honor of the 26th CPSU Congress have been 70-percent fulfilled.

All items of the product mix target and the equipment deliveries target have been fulfilled. Oilfield equipment of 11 product designations, worth 7 million rubles, or 60 percent more than in the first half of last year, has been shipped off ahead of schedule to the oil workers of Tyumen' and the Far North. The percentage share of output shipped to this country's northern regions has increased to 40 percent of total production volume.

Considerable efforts are still needed in order to achieve the specified targets pertaining to developing the oil wealth of Siberia. The machine builders of our plant understand this well. Aware of the oil workers' steadily increasing requirements in oilfield equipment, this plant's workers resolved this year to complete shipment of goods filling orders placed by the oil workers of Western Siberia and the Far North by 1 December.

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LAG IN NEBITDAGNEFT' PRODUCTION EXPLAINED

Ashkhabad TURKMENSKAYA ISKRA in Russian 18 Jun 80 p 2

[Article by Kh. Ishanov, chief of the Nebitdagneft' NGDU imeni 50th Anniversary of the USSR: "There Will Be a Rich Deposit"]

[Text] Stabilization of oil production levels from old, substantially depleted deposits requires continuous and dynamic replacement of fixed production capital. Exploitation of the Barsa-Gel'messkaya, Burunskaya and Vyshkinskaya fields is possible only under these conditions. This rule has been broken in recent years, a fact which goes far to explain the lag in Nebitdagneft' NGDU [Oil and Gas Production Administration] oil production.

New capacities have been added at Barsa-Gel'mes over the past year and a half, thanks to which last year the administration collective was able successfully to cope with state plan requirements. Since the beginning of this year 146 tons of petroleum and 45 million cubic meters of gas have been extracted over and above plan targets.

But what we are speaking of in this instance is not the bringing of new wells into operation, but rather of those "old" wells which helped oilmen produce their above-plan tons of petroleum. It is generally known that many wells in the Barsa-Gel'messkaya field have stopped flowing. A number of pipelines, gas lines, gas-distribution batteries, gas-treatment units and energy-supply and formation-pressure maintaining facilities have been built to convert them to mechanized methods of extracting the liquid fuel.

We have been exploiting all gas resources for gas-lift petroleum extraction. Thirteen gas-distribution batteries and heating furnaces have made it possible to dispense with an inadequate temporary system for supplying gas to 56 different oil wells. But the problem of increasing our oilfield power-supply capacities has now become acute. An old electric-power transmission line is now being improved and a new one and substations are under construction.

Nebitdagneft' workers have brought the daily volume of water pumped into formations up to that planned. But the construction of a new facility for maintaining formation pressure is still under way. In the eastern part of the Barsa-Gel'messkaya field, among others, the Turkmenneftestroy trust is achieving a good pace in its work on the construction of a pumping station, water lines and a water treatment unit. When this facility is brought into operation, the petroleum will be prepared for transport, not at Vyshka as at present, but rather directly at Barsa-Gel'mes itself. Water remaining will be repumped into the formations.

We have recently accepted from the builders a control facility, 27 kilometers of remote control lines and 13 automatic group metering units. But this is unfortunately insufficient for full mechanization of production. According to the plan we are to receive 59 metering units. But the Mangyshlakskoye assembly and installation administration is moving at only a slow pace in its work; it is leaving many things unfinished which will have to be taken care of by operational personnel.

Construction is also behind schedule on a gas-drying unit, for which there is an enormous need. A control panel and its automatic equipment arrived, not in unitized form as it was to have been, but rather disassembled. Additional efforts were required to plan assembly and installation operations and to check out the equipment.

The petroleum preparation and transportation has been entirely replaced. But a portion of the work remains unfinished in this instance as well--the petroleum trap system. The installation of this unit will prevent further petroleum losses.

The entire collective of our administration has begun to work better and to demonstrate greater coordination of its efforts. Helping master the operation of new facilities and equipment are crews led by M. Mordachev and S. Orazaliyev, petroleum and gas production operators A. Annakurbanov, V. Kiselev and Sh. Khancharov and engineers N. Yalovegin, F. Babakov and M. Babayev.

But it is now necessary to see to future planning and equipment for the Vyshka, Burun and Barsa-Gel'mes deposits. We are so far relying upon only our own efforts and resources in converting Burun wells to mechanized extraction operations, but what we are able to do by ourselves is not enough. Planning for the seventh phase at Barsa-Gel'mes has not yet begun.

It is now time to give thought to asset replacement in the Vyshka field, the cradle of the republic's petroleum industry. Reserves here are far from exhausted, but all the equipment is old and worn out. And the settlement imeni 26 Baku Commissars itself needs improvement, illumination, repairs on the living quarters.

The accomplishment of these great tasks requires the assistance of the Turkmenneft' association, the Nebit-Dag gorispolkom and other organizations.

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SHURTAN-SYRDAR'INSKAYA GRES GAS PIPELINE PROGRESS REPORTS

Moscow IZVESTIYA in Russian 7 May 80 p 1

[Article by B. L'vov: "Lines of Blue Flame"]

> [Text] Minneftegazstroy builders laying the la.ge Shurtan-Syrdar'inskaya GRES gas pipeline have now covered over half their desert route.

They have covered no easy course over the sands of the Kyzyl Kum and the sun-scorched plain, through sand storms and the open, sun-baked desert. This spring brought with it an unexpected surprise--weeks of light rain.

But even under these conditions, personnel at Sredazneftegazstroy sites discovered a method of welding despite the rain; and not a single joint has been rejected as faulty. And then when the hot southern sun again broke through over the line, they proceeded to tote up the results of the work done over what are referred to as "days certified lost due to bad weather." The welded line had been taken tens of kilometers farther, while the insulation workers of V. Polbitsyn's mechanized column completed a great volume of work. The socialist obligation involved was substantially overfulfilled. V. Voldernistyy's excavator operators also turned in an outstanding performance. Several kilometers of trench were excavated beyond the number targeted.

The pipe-transport operators complete as many as two to three round trips a day beyond those called for by the plan. A 10-machine crew led by A. Konovalenko is the winner in competition. Over a short period of time it transported almost 50 kilometers of pipe, one-third of them over the number required by established norms.

The Shurtan-Syrdar'inskaya GRES pipeline will become an integral part of a large gas-transport system being created in southern Uzbekistan. It will consist of a number of gas pipelines which will carry the "blue fuel" geologists have discovered in the reef formations of a warm-water sea which once existed in the region of the Karshinskaya steppe and the Kyzyl Kum.

The Mubarekskiy gas-treatment plant is already in operation at the Urtabulakskiy deposit. Sulfur-free natural gas goes into the Central Asia-Center, Bukhara-Ural and Mubarek-Tashkent-Frunze-Alma-Ata main pipelines.

Gas pipelines are being planned, and have been partially laid, from the Uchkyr, Kurta-Bulak, Yuzhnyy, Severnyy Mubarek and other fields; and the Mubarekskiy gas-treatment plant is being expanded. Work is now being completed on two more units for removing sulfur from the gas.

Following the laying of the steel channel designed to provide a solid foundation for increasing electric-power generation at the Syrdar'inskaya GRES will come the construction of a gas-supply system for the Talimardzhanskaya GRES with its 3.2 million-kilowatt capacity, as well as lines to other regions of Uzbekistan and beyond its borders.

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FUELS

COAL OUTPUT DECLINES IN KIROVOGRADSKAYA OBLAST

Kiev PRAVDA UKRAINY in Russian 2 Jul 80 p 2

[Article by Engineer A. Rybal'chenko (Kirovograd): "A Step Backward"]

> [Text] Not very long ago the Aleksandriyskaya Brown-Coal Basin was producing more than 10 million tons of coal per year. Recently the strip and underground mines of Aleksandriyaugol' [Aleksandriya Coal-Mining Association] reduced its output, and the populace is not getting enough fuel for domestic needs. This correspondent's report tells about the causes for the lag that is being prolonged.

Four years ago the production association was established on the base of the Aleksandriyaugol' Combine, which included kindred enterprises of Cherkasskaya, Kiev, Zhitomirskaya and Kirovogradskaya oblasts. The Kirovograders mined 82 percent of the total output. Thus the fate of the plan indicators for the whole association depends upon the operation of Kirovogradskaya Oblast enterprises.

It must be said that in the postwar years the coal basin developed at a rapid pace. Underground mines Nos 2 and 3 and the Baydakovskiy and Golovkovskiy and then the Morozovskiy, Verbolozovskiy and a number of other strip mines were introduced into operation. By 1975, 10.1 million tons of fuel--the highest indicator in the basin's whole history--were being mined in Aleksandriya. Then began a decline. Last year only 8,502,000 tons of coal were obtained. The production of briquettes, which are used mainly for household fuel, was reduced appreciably.

The main cause of the worsening of the work is, in the specialists' opinion, the fact that the association managers and the republic's Ministry of Coal Industry did not become worried in time about the prospects for further development of the basin. In 1975 the Golovkovskiy strip mine, which had yielded 2 million tons per year, had been worked out; next year the Mikhaylovskiy strip mine, with a capacity of 1.1 million tons, and the Aleksandriyskaya underground mine, with an annual output of 500,000 tons, were closed. And what replaced them? The 1.7-million ton Verbolozovskiy strip mine and the Protopopovskiy section of the Bandurovskiy strip mine, and the Novomirgorodskaya underground mine was put into operation. But they could not carry out the mining task. The annual deficit is more than 1 million tons of fuel. According to the specialists' estimates, the Balakhovskiy strip mine will be worked out next year, and the Verbolozovskiy and Bandurovskiy will be closed in 5 years. True, construction of the Medvezheyarskaya underground mine has started. But it will produce coal only for a year and a half, although, according to a decision by higher authority, they should have begun to get fuel here 4 years ago--but construction has been tardy.

And so, one after another, Aleksandriiugol' enterprises have been held up. Now the association's management, instead of using all reserves and striving to carry out the plans, is actually urging that they be revised downward. The republic's Minugleprom [Ministry of Coal Industry] is accommodating them. In the past year, let's say, the plan was reduced by 1,625,000 tons.

Or take this fact. An underground mine was turned over in Novomirgorodskiy Rayon in Kirovogradskaya Oblast. It was turned over with a delay of 2 years and with a mass of more than 4.3 million rubles' worth of unfinished work, which had been included in the work volume for that year.

Chief engineer of the underground mine Ye. A. Zavgorodnyy complains:

"Bulldozers, automotive loaders, pumps for tunneling drainage and for drying out the mine floor, water protectors, electric locomotives, charge tables and 2 km of pipe 159 mm in diameter are extremely necessary for us."

He complains, completely correctly, that there are not enough shift chiefs, section mechanics, foremen, electric-locomotive drivers, and electrical mechanics for the repair of mining equipment. Many offer their services but there is no housing, and it is not easy to relocate people.

The fact is that the construction project has not been worked at earnestly. There has been a long delay here in establishing a construction administration (this when the budget-estimated cost of the facility is 30 million rubles), and guidance is executed by periodic short visits by specialists from Vatutin, Cherkasskaya Oblast. They have not been concerned about the support system--neither housing nor other facilities for social, cultural or domestic services purposes have been built, and people have had to be hauled 80 km to work. And questions of living conditions are being solved thoroughly badly.

All this has led to the construction project's feeling severely a lack of workers, and from this come those interruptions and displacements of plans for introducing underground mines into operation that were mentioned above. Moreover, disproportion in the main economic indicators--growth of the wage fund far in excess of labor productivity indicators--has been permitted. Something should be said also about the fact that eight chiefs of the mine-construction administration were relieved during erection of the enterprise.

Deficiencies at the facility would be far fewer if local party and soviet organs and oblast organizations would be occupied with it in earnest. But this is not being done. Meanwhile, the Aleksandriyaugol' Association continues to fall thousands of tons short in its output of much-needed fuel.

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FUELS

BRIEFS

CONVERSION TO NATURAL GAS--Tyumen'. Another boiler unit of the local heat-and-electric-power central has converted to natural gas. For this purpose Tyumen' workers built a pipeline that joins the TETs with the Urengoy-Chelyabinsk trunk gas pipeline. Use of the "blue fuel" has enabled the TETs's energy capacity to be greatly increased and hundreds of thousands of tons of coal, peat and mazut to be saved. The air basin of Tyumen' has become much cleaner. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 29 Jun 80 p 1] 11409

SUPERDEEP HOLE DRILLED--Groznyy. The drilling brigade of S. Madayev from Grozneft' [Groznyy State Association for Oil Production] completed the full penetration cycle for a hole 5,001 meters deep twice as rapidly as usual--in less than a year and a half. The collective thereby is the first among drillers into the earth in Checheno-Ingushetia to carry out an important item in the socialist commitments--a maximum reduction in time used in drilling superdeep holes. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 29 Jun 80 p 1] 11409

NEW DRILL BIT--Drogobych (L'vovskaya Oblast). A new drilling tool will accelerate penetration of holes under complicated geological conditions. Its serial output has been mastered at the Drogobych Drill-Bit Plant. The first lot of drill bits, which are made from a special alloy, has been shipped to underground explorers of West Siberia and the Far East. During the Tenth Five-Year Plan the enterprise's collective has mastered the production of more than 30 types of effective tools. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 19 Jul 80 p 1]

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